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SAMPLES
OF THE
WORK IN DRAWING
OF THE STUDENTS OF
✓
THE INTERNATIONAL CORRESPONDENCE SCHOOLS
" SCRANTON, PA.

MECHANICAL DRAWING

THE COLLIERY ENGINEER COMPANY
SCRANTON, PA.



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PROBLEM 1: To bisect a straight line

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.

CASE I.

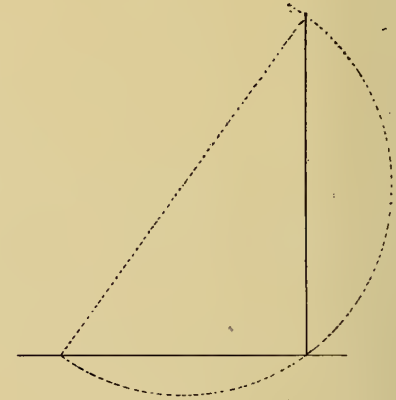
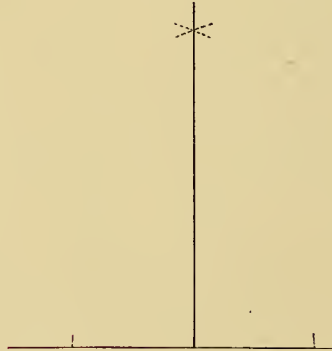
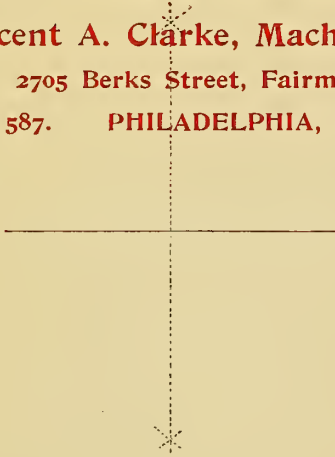
CASE II

Photograph of Plate Drawn by

Vincent A. Clarke, Machinist, Age 29,

2705 Berks Street, Fairmont Station,

C. 587. PHILADELPHIA, PA.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it

CASE II.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line

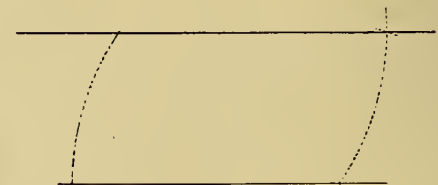
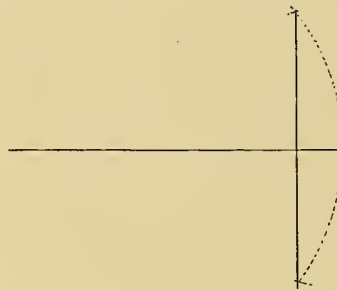
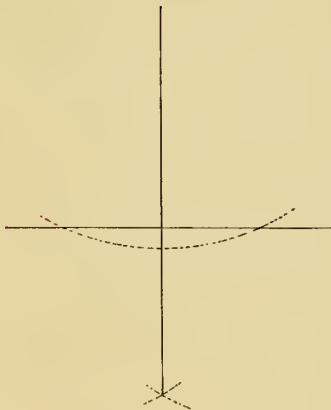


PLATE I

PROBLEM 1: To Bisect a straight line.

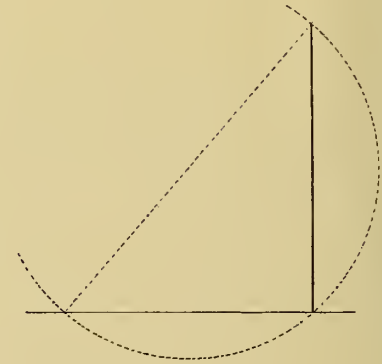
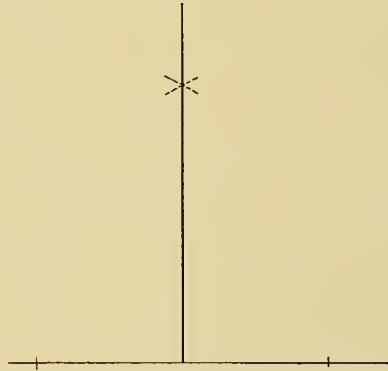
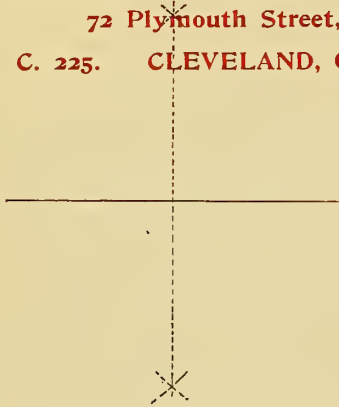
PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.
CASE 1

Photograph of Plate Drawn by

E. R. Young, Machinist, Age 25,

72 Plymouth Street,

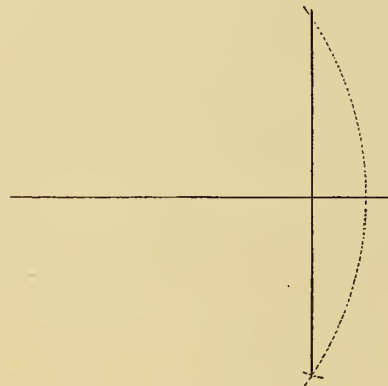
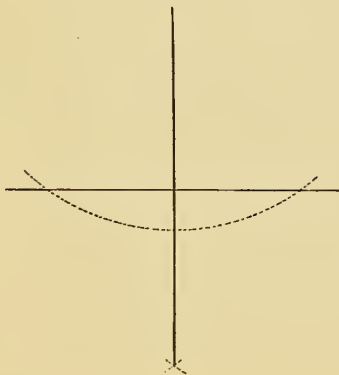
C. 225. CLEVELAND, OHIO.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it
CASE 1

CASE 2

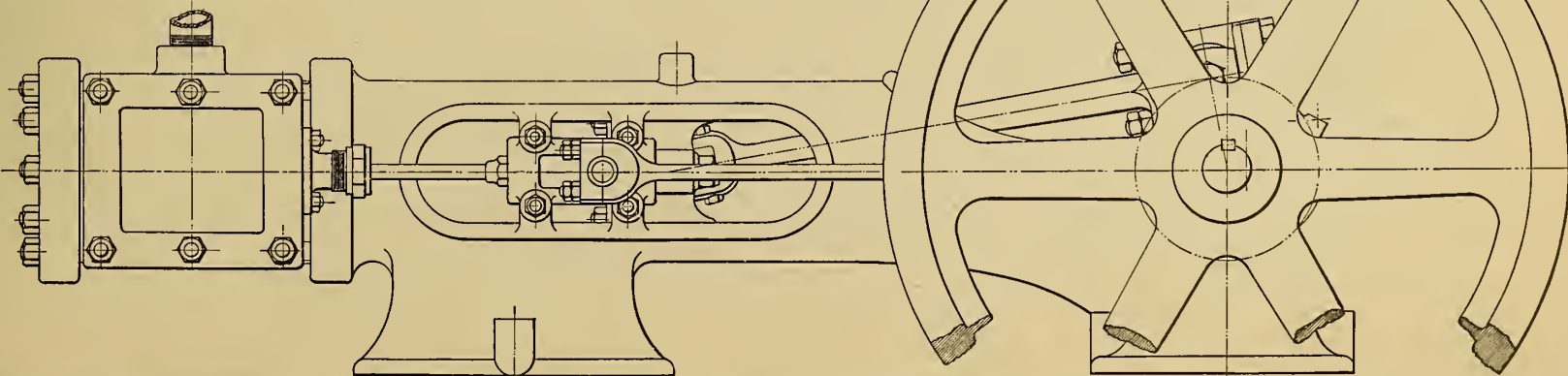
PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line.



Photograph of Plate Drawn by
E. R. Young, Machinist, Age 25,
72 Plymouth Street,
C. 225. CLEVELAND, OHIO.

**SIX HORSE POWER
HORIZONTAL STEAM ENGINE.**

Scale 3" = 1 Ft



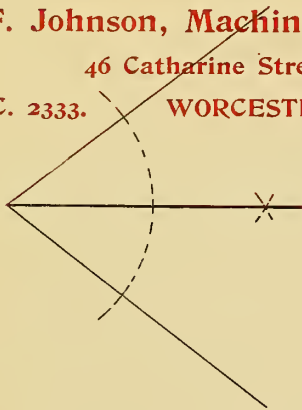
To bisect a given angle.
CASE I.

Photograph of Plate Drawn by

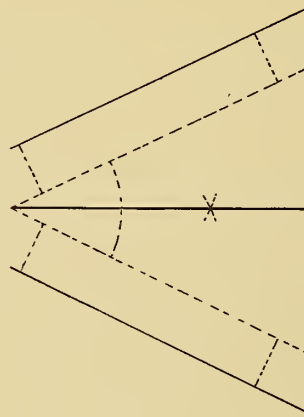
J. F. Johnson, Machinist, Age 28,

46 Catharine Street,

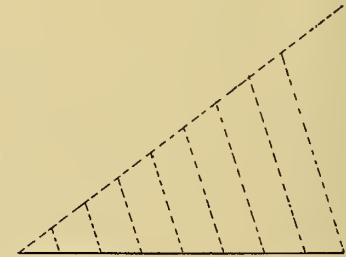
C. 2333. WORCESTER, MASS.



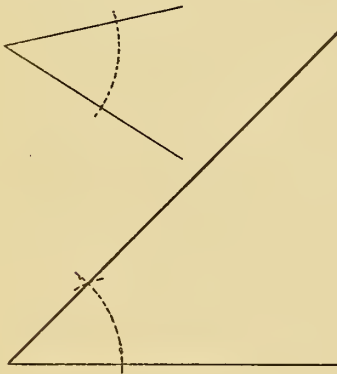
To bisect a given angle
CASE II.



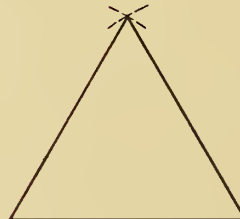
To divide a given straight line into any
required number of equal parts.



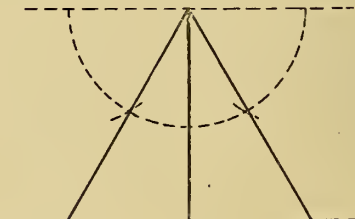
To draw a straight line through any given point
on a given straight line to make any required angle
with that line:



To draw an equilateral triangle, one side
being given:



The altitude of an equilateral triangle being
given, to draw the triangle:

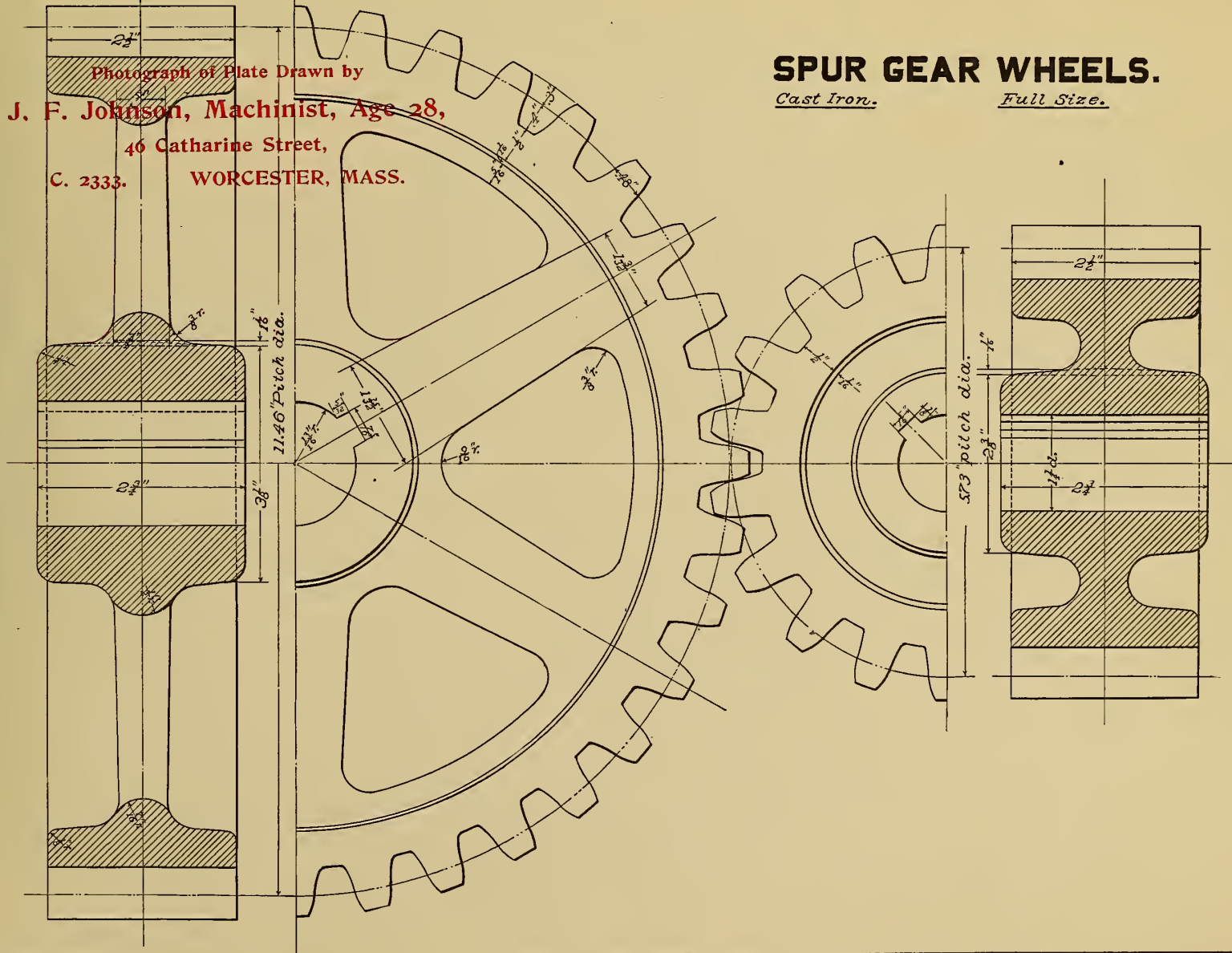


SPUR GEAR WHEELS.

Cast Iron.

Full Size.

Photograph of Plate Drawn by
J. F. Johnson, Machinist, Age 28,
 46 Catharine Street,
 C. 2333. **WORCESTER, MASS.**



PROBLEM 5. To bisect a given angle
CASE I.

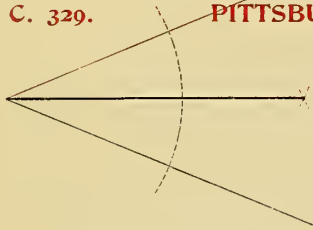
Photograph of Plate Drawn by

J. G. Phillips, Machinist, Age 29,

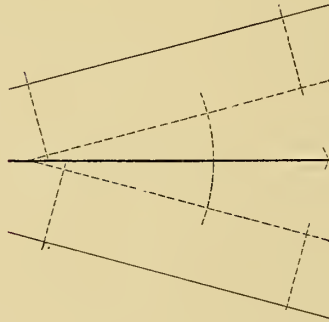
33 Eureka Street,

C. 329.

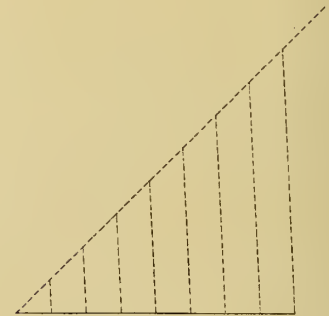
PITTSBURG, PA.



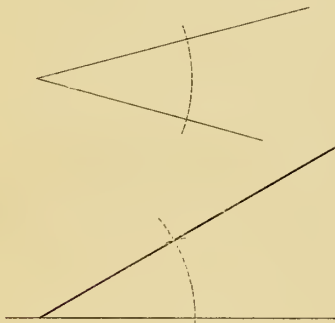
PROBLEM 5. To bisect a given angle
CASE II.



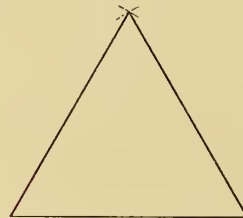
PROBLEM 6. To divide a given straight line into any required number of equal parts.



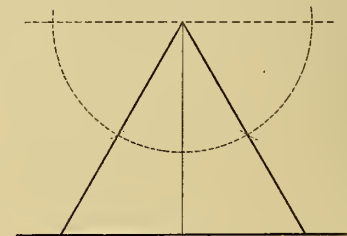
PROBLEM 7. To draw a straight line through any given point on a given straight line to make any required angle with that line.



PROBLEM 8. To draw an equilateral triangle one side being given.



PROBLEM 9. The altitude of an equilateral triangle being given to draw the triangle.



CONNECTING ROD.

Wro't. Iron. Brass Boxes, Babbited.
Scale 3"=1 Ft. Finished.

Photograph of Plate Drawn by

J. G. Phillips, Machinist, Age 29,

33 Eureka Street,

C. 329.

PITTSBURG, PA.

4'-3½"

2'-1½"

Fig 1.

EXPANSION JOINT.

Cast Iron. Scale 3"=1 Ft.

Crank End.

Crosshead End.

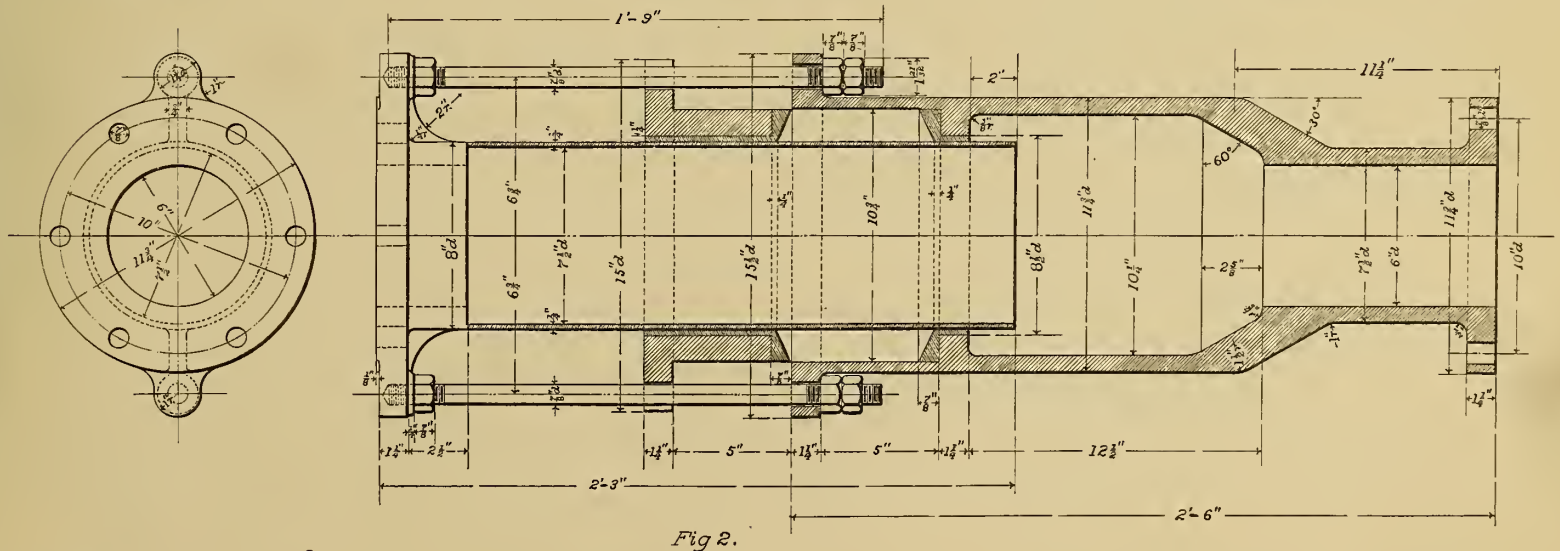


Fig 2.

PLATE I.

PROBLEM 1: To bisect a straight line.

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.
CASE I.

CASE II.

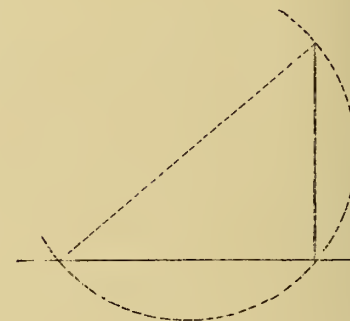
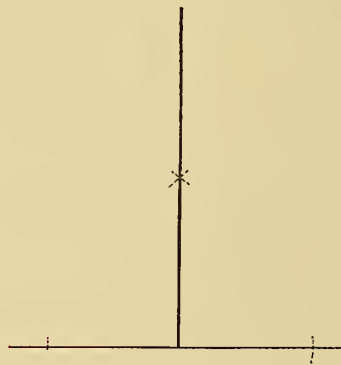
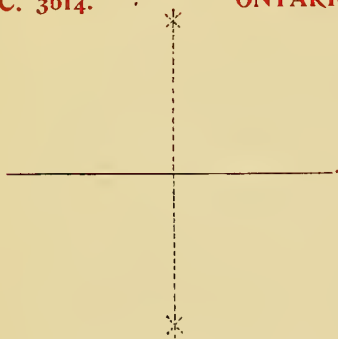
Photograph of Plate Drawn by

John Edgar, Asst. Millwright, Age 17,

BOX 205, WINDSOR,

C. 3614.

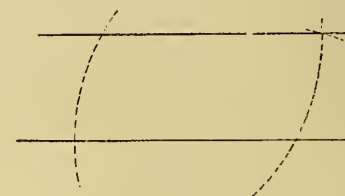
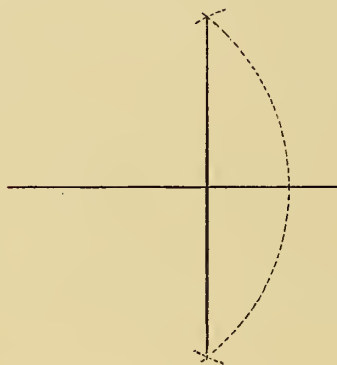
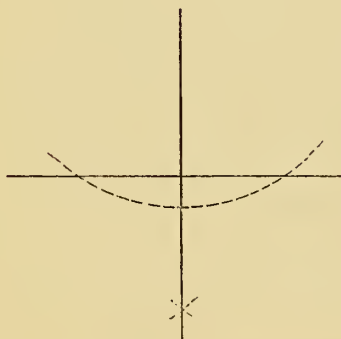
ONTARIO, CANADA.



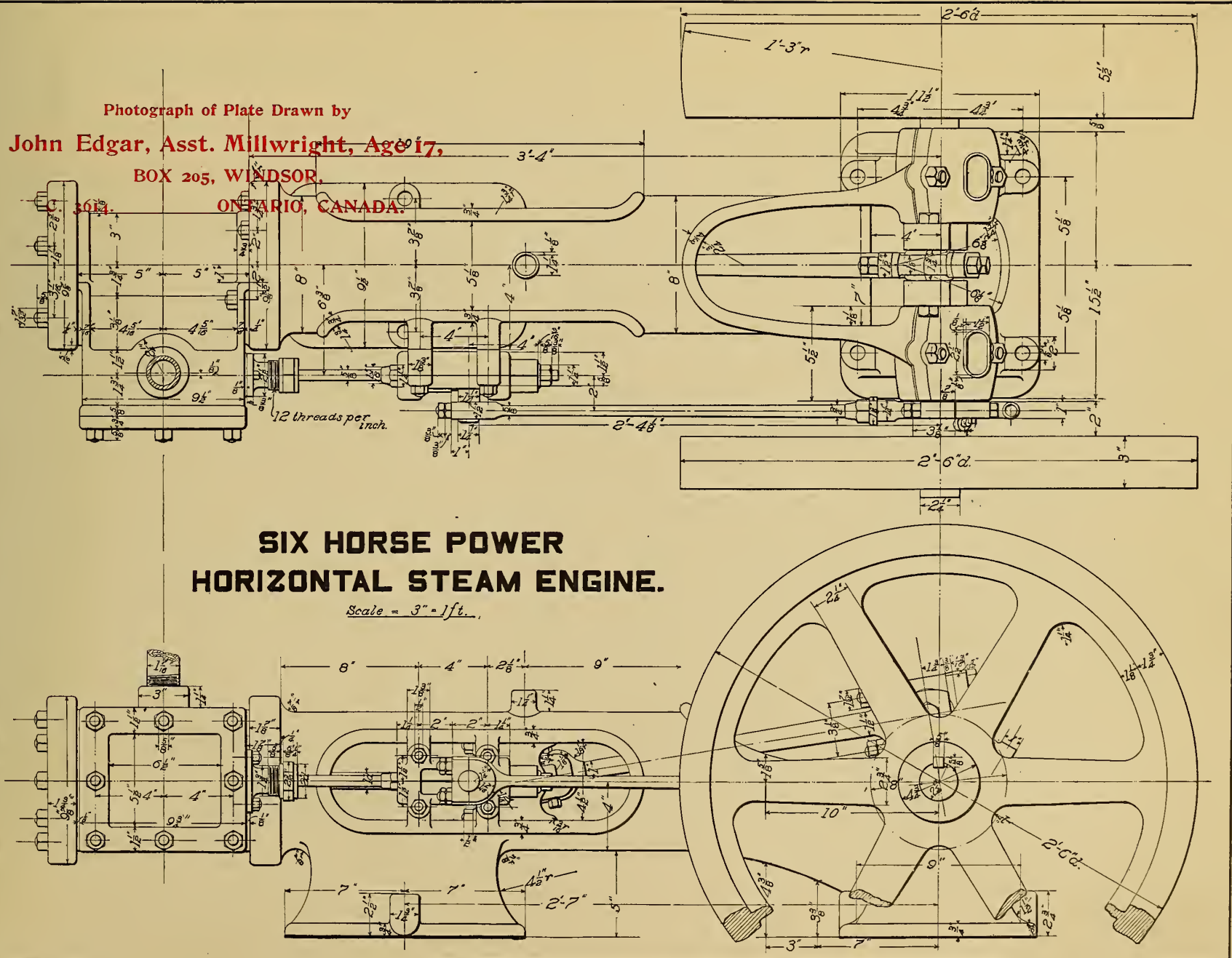
PROBLEM 3: To draw a perpendicular to a straight line from a without it.
CASE I.

CASE II.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line.



Photograph of Plate Drawn by
John Edgar, Asst. Millwright, Age 17,
BOX 205, WINDSOR,
ONTARIO, CANADA.



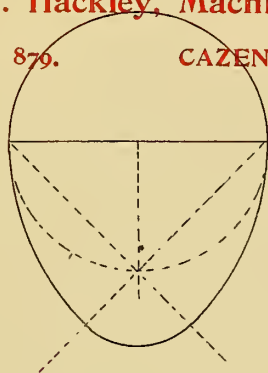
PROBLEM 22 To draw an egg shaped oval.

Photograph of Plate Drawn by

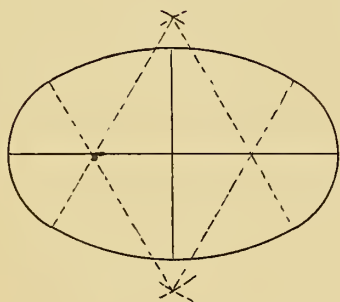
G. T. Hackley, Machinist, Age 16,

C. 879.

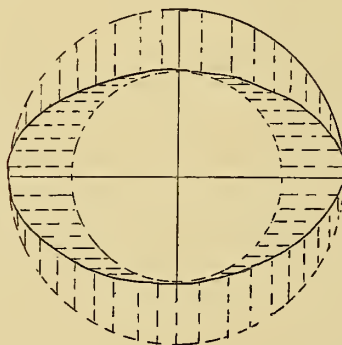
CAZENOVIA, N. Y.



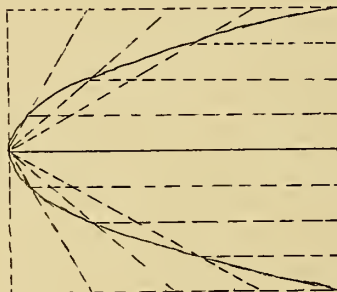
PROBLEM 24 To draw an ellipse with circular arcs.



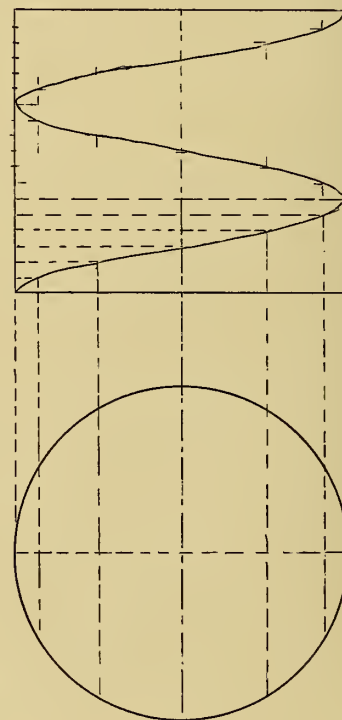
PROBLEM 23 To draw an ellipse the diameters being given.



PROBLEM 25 To draw a parabola the axis and longest double ordinate being given.



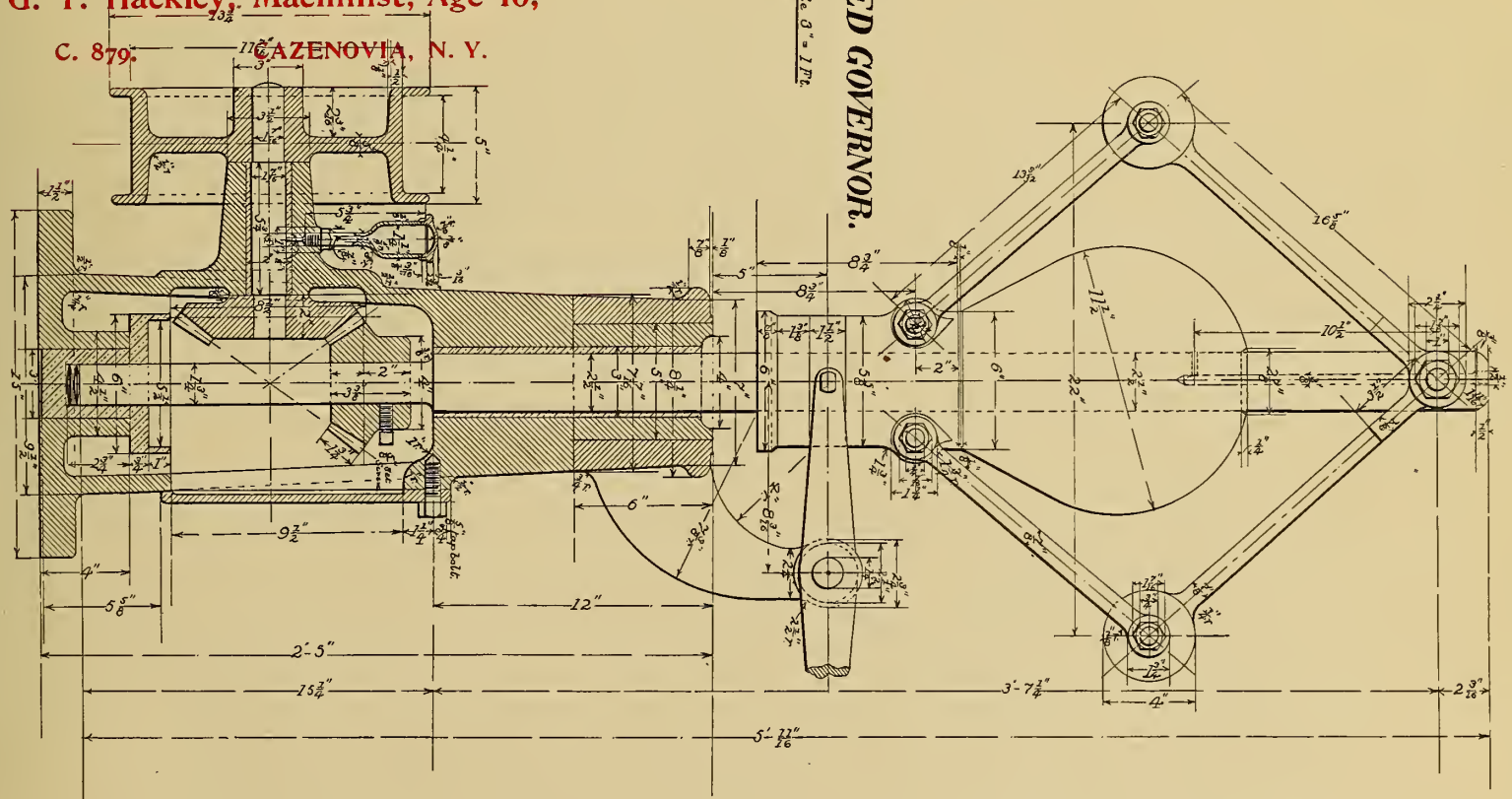
PROBLEM 26 To draw a helix, the pitch and the diameter being given



Photograph of Plate Drawn by

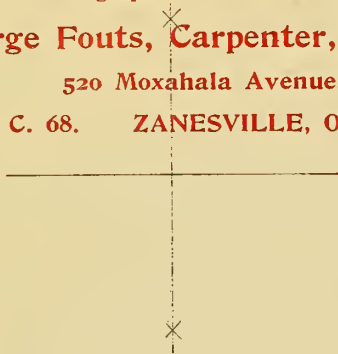
C. 879.

CAZENOVIA, N. Y.

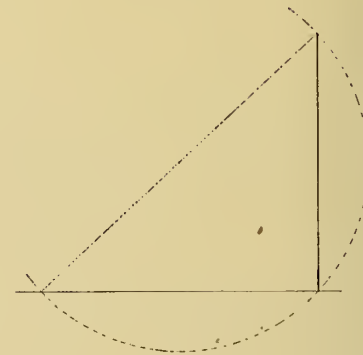
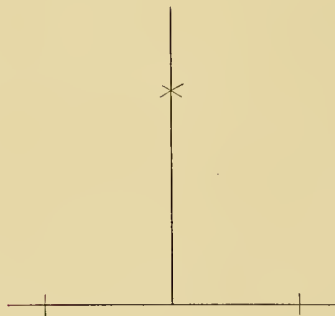


PROBLEM 1: To bisect a straight line

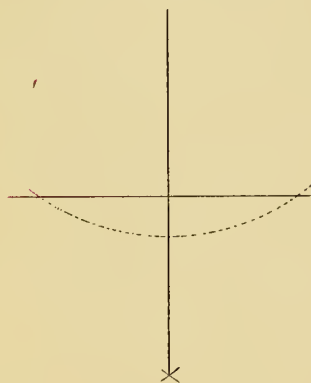
Photograph of Plate Drawn by
George Fouts, Carpenter, Age 30,
520 Moxahala Avenue,
C. 68. ZANESVILLE, OHIO.



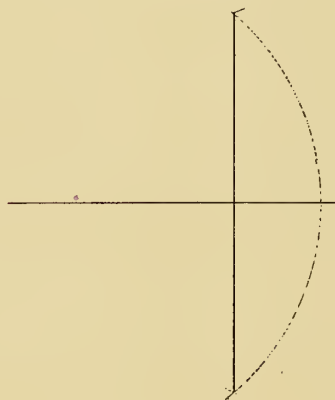
PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line
CASE I.



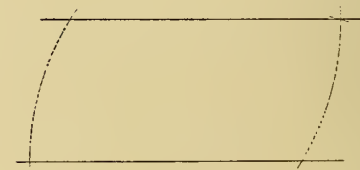
PROBLEM 3: To draw a perpendicular to a straight line from a given point without it
CASE I.



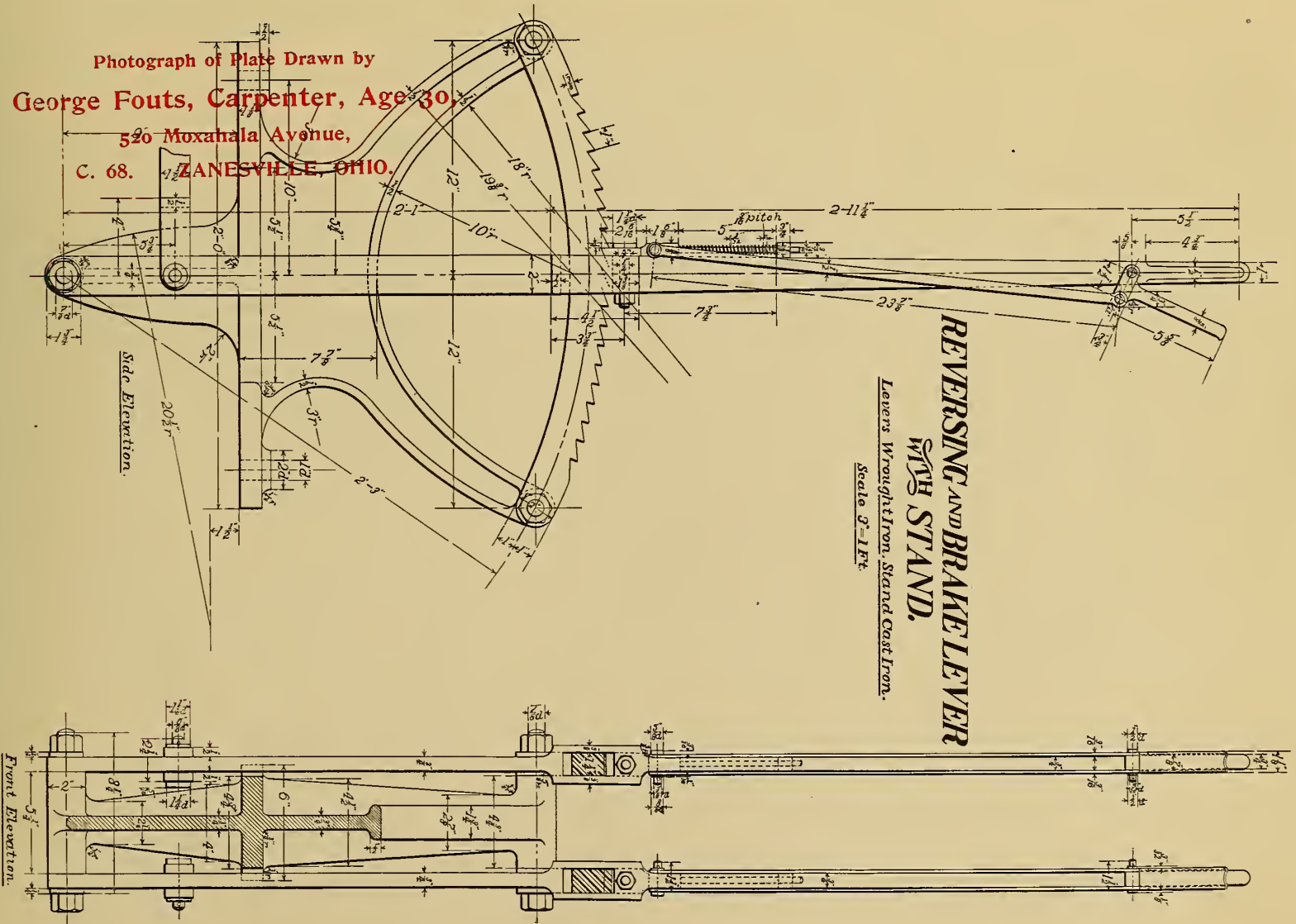
CASE II.



PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line



Photograph of Plate Drawn by
George Fouts, Carpenter, Age 30
 520 Moxahala Avenue,
 C. 68. ZANESVILLE, OHIO.



PROBLEM 1: To bisect a straight line.

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.
CASE I.

CASE II.

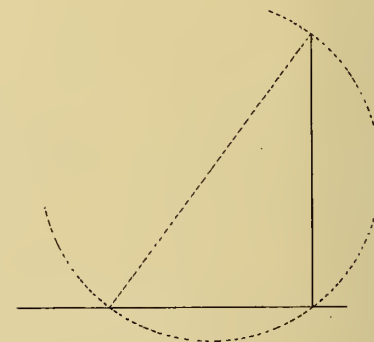
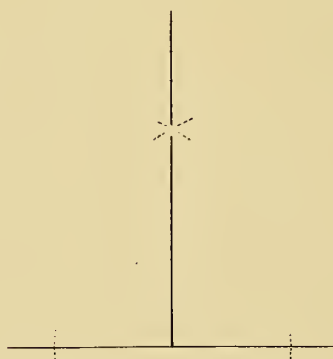
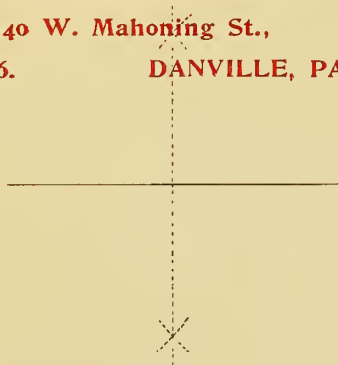
Photograph of Plate Drawn by

C. W. Johnson, Age 19,

140 W. Mahoning St.,

C. 2666.

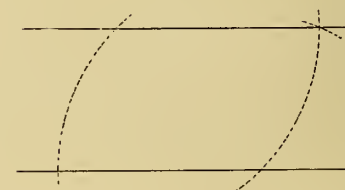
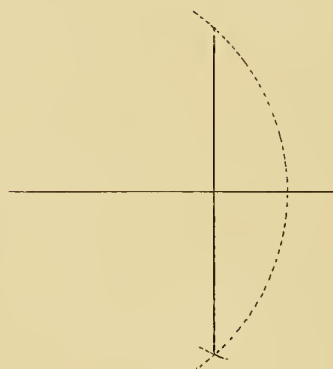
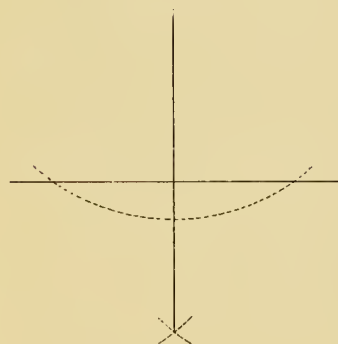
DANVILLE, PA.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it
CASE I.

CASE II.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line.



Scale $\frac{3}{4}''=1\text{Ft.}$

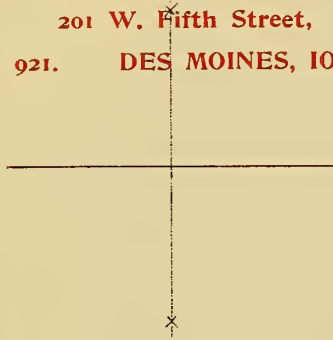




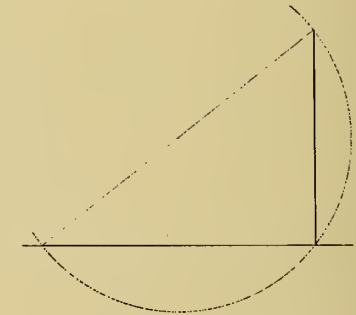
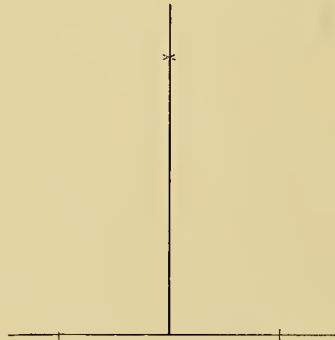
PLATE I

PROBLEM 1: To bisect a straight line.

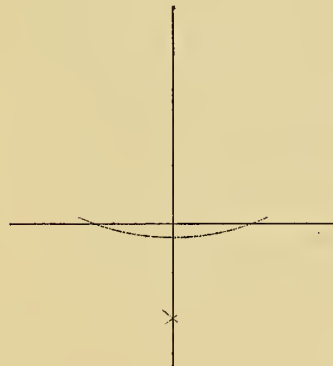
Photograph of Plate Drawn by
James Barels, Printer, Age 24,
201 W. Fifth Street,
C. 921. DES MOINES, IOWA.



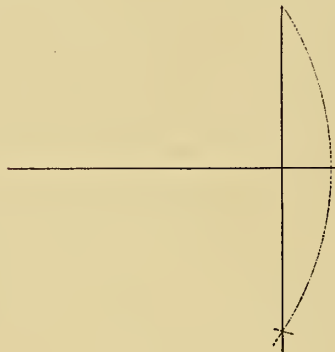
PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.
CASE I.



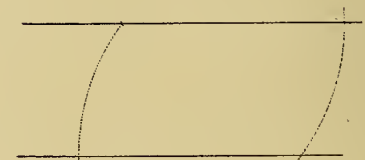
PROBLEM 3 To draw a perpendicular to a straight line from a point without it.
CASE I.



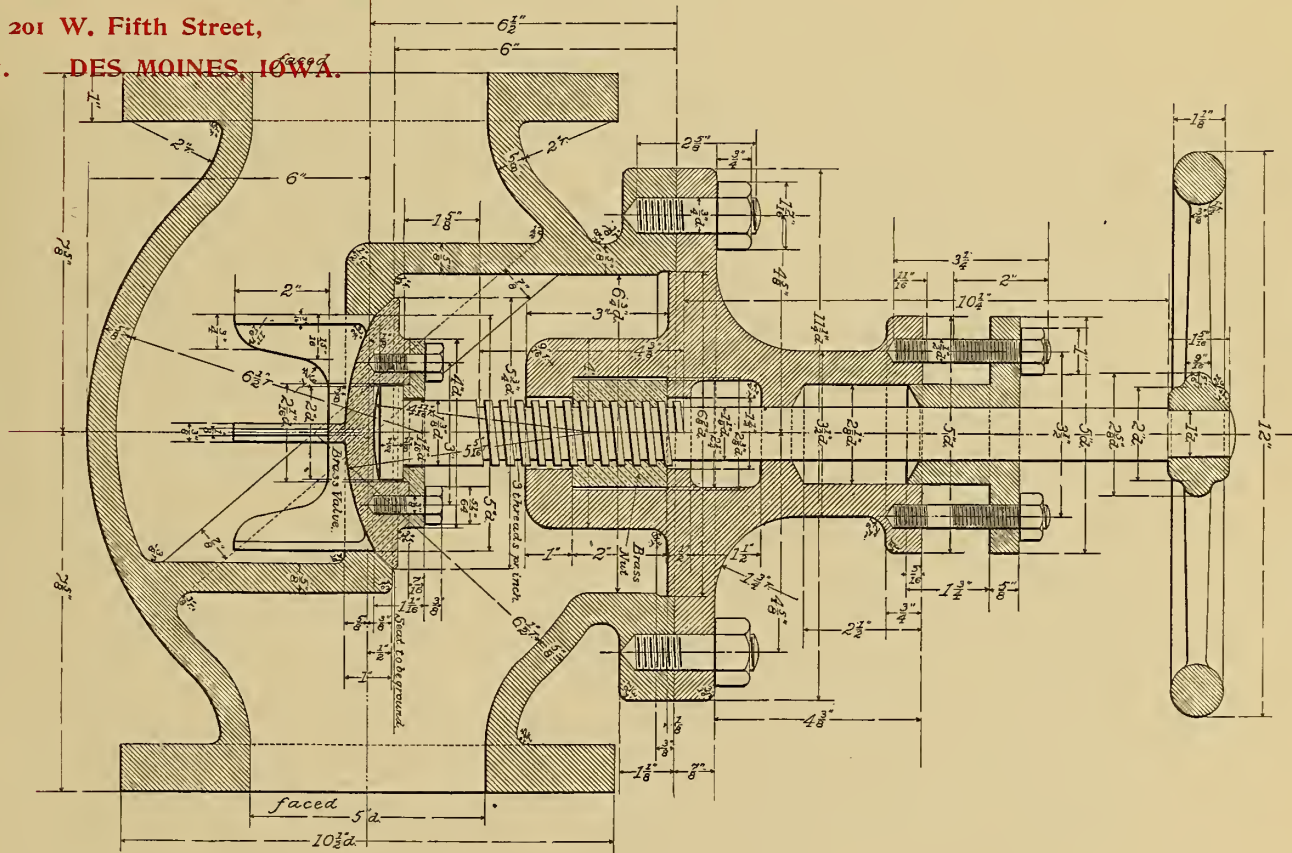
CASE II.



PROBLEM 4 Through a given point to draw a straight line parallel to a given straight line.



Photograph of Plate Drawn by
James Barels, Printer, Age 24,
201 W. Fifth Street,
C. 921. DES MOINES, IOWA.



5 INCH GLOBE VALVE.
Cast Iron
Half Size

PROBLEM I: To bisect a given straight line

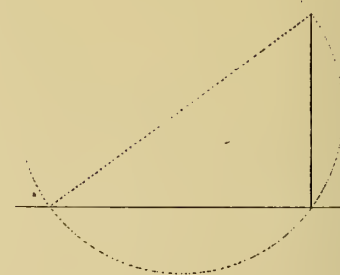
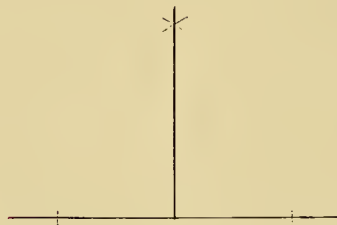
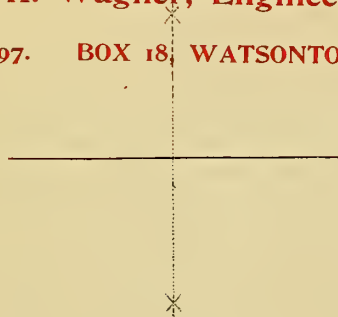
PROBLEM To draw a perpendicular to a straight line from a given point in that line.
CASE I

CASE II.

Photograph of Plate Drawn by

Geo. K. Wagner, Engineer, Age 22,

C. 97. BOX 18, WATSON TOWN, PA.



PROBLEM 3: To draw a perpendicular to a straight line from a given point without it,
CASE I.

CASE II

PROBLEM 4 Through a given point to draw a straight line parallel to a given straight line

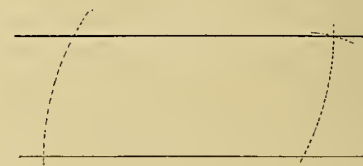
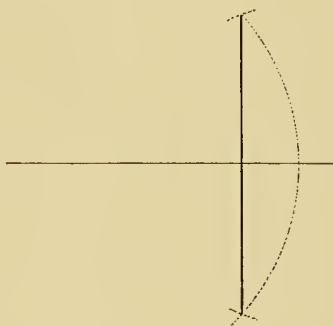
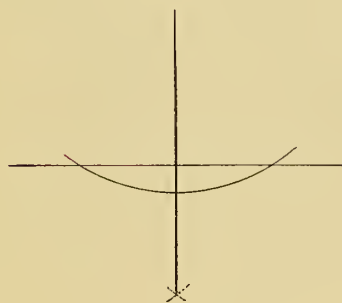


PLATE XXI.

Large Wheel

Pitch dia 63 7/8"

Pitch **Photograph of Plate Drawn by**

20 teeth

Geo. K. Wagner, Engineer, Age 22,

Pinion

C. 97, BOX 18, WATSON TOWN, PA.

Pitch dia 6 09 1/8"

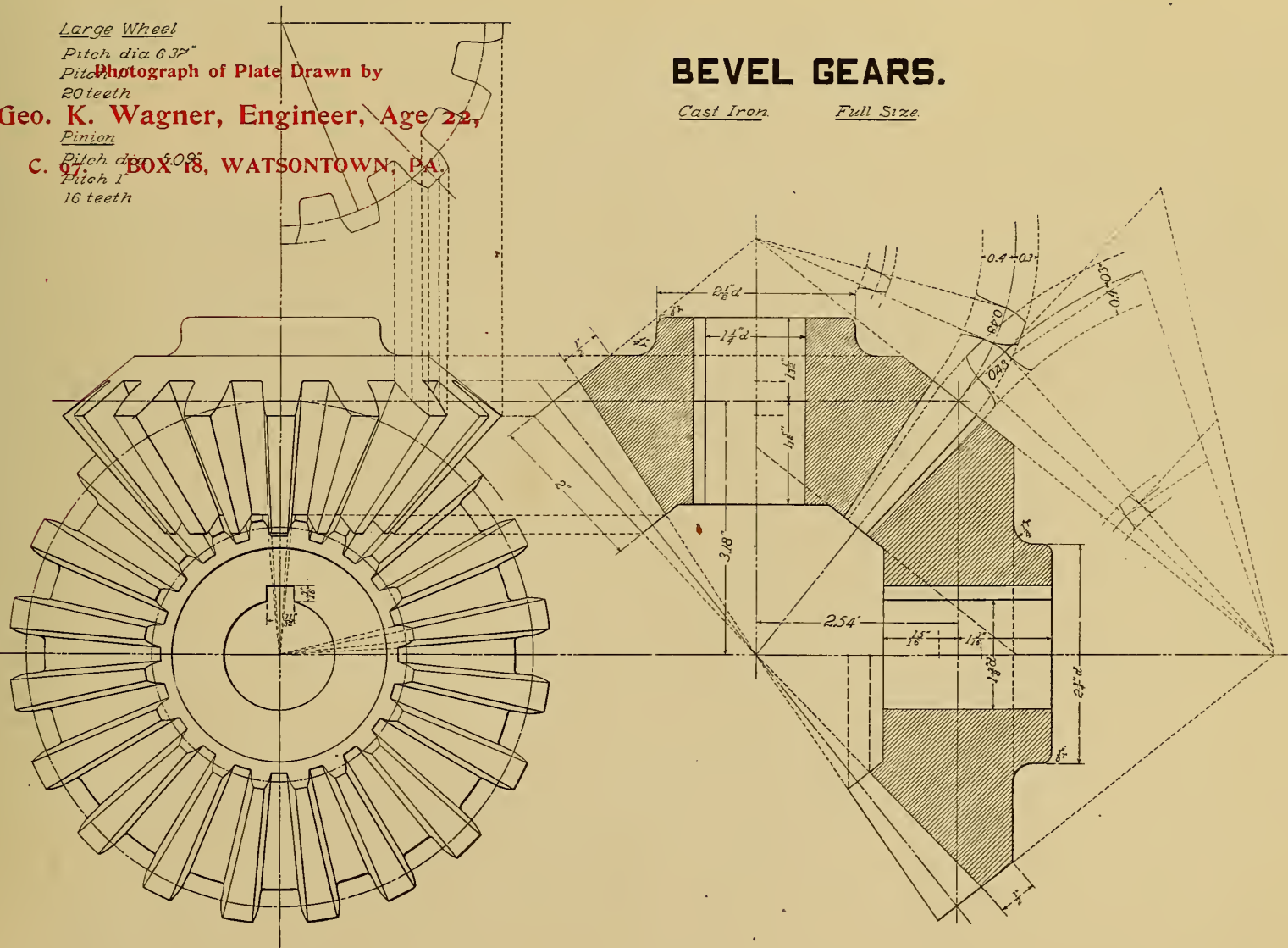
Pitch 1"

16 teeth

BEVEL GEARS.

Cast Iron.

Full Size.



MARCH 31 1897.

GEORGE K. WAGNER, CLASS N° C 97.

Photograph of Plate Drawn by
O. S. PIKE, Farmer, Age 25,
C. 1548. NEW LISBON, OHIO.

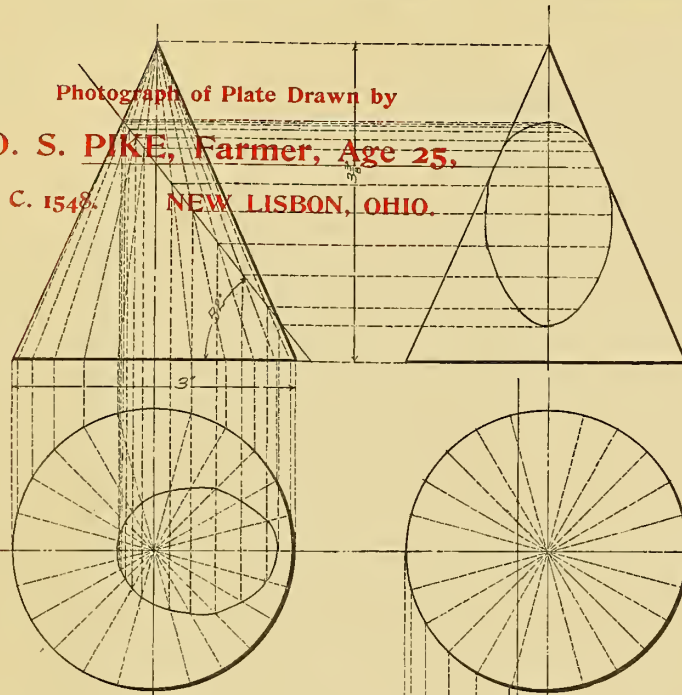


Fig. 1.

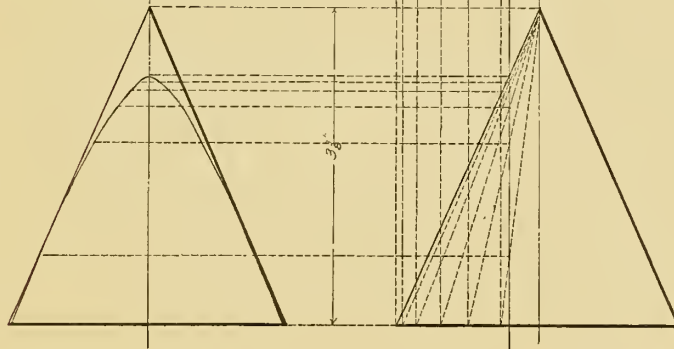


Fig. 2.

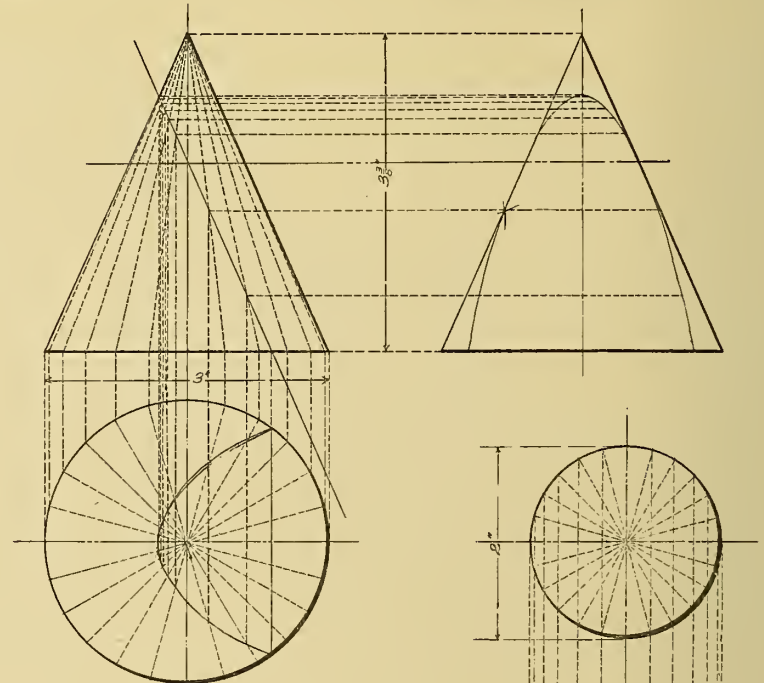


Fig. 3.

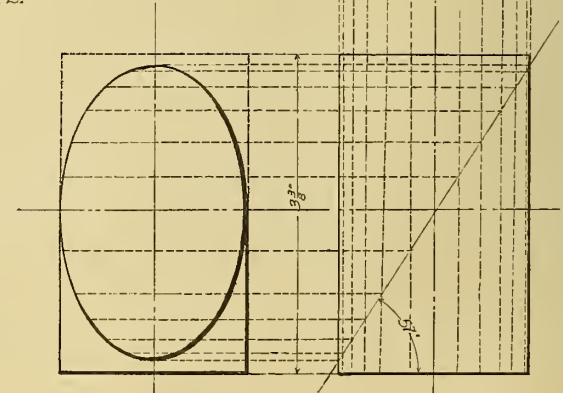


Fig. 4.

Scale $\frac{3''}{4} = 1 \text{ ft.}$

C. 1548. NEW LISBON, OHIO.

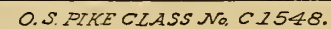


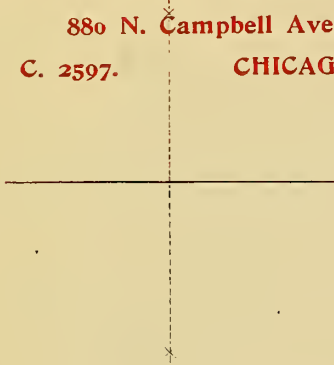
PLATE I

PROBLEM 1: To bisect a straight line

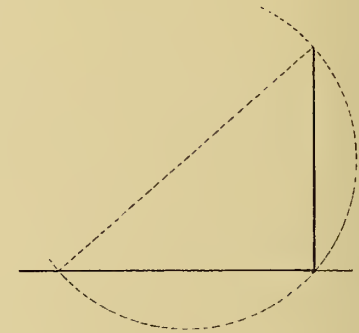
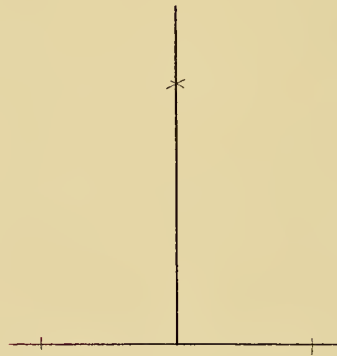
Photograph of Plate Drawn by

Fred. Kuhlmann, Machinist, Age 31.

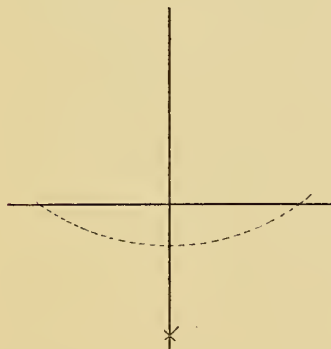
880 N. Campbell Avenue,
C. 2597. CHICAGO, ILL.



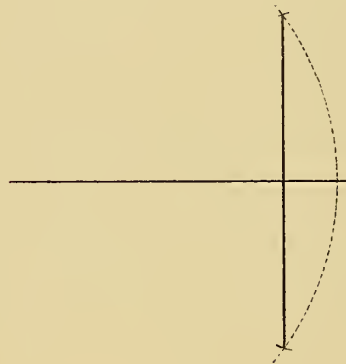
PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.
CASE I.



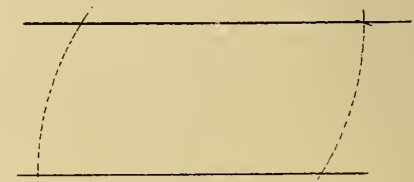
PROBLEM 3: To draw a perpendicular to a straight line from a point without it.
CASE I.



CASE II.



PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line



BEVEL GEARS.

Cast Iron. Full Size.

Photograph of Plate Drawn by
Fred Kuhlmann, Machinist, Age 31,
 880 N. Campbell Avenue,
 CHICAGO, ILL.
 CLASS No. C. 2597
 LARGE WHEEL
 Pitch dia 6.37"
 Pitch 1"
 20 Teeth
 PINION.
 Pitch dia 5.09"
 Pitch 1"
 16 Teeth.

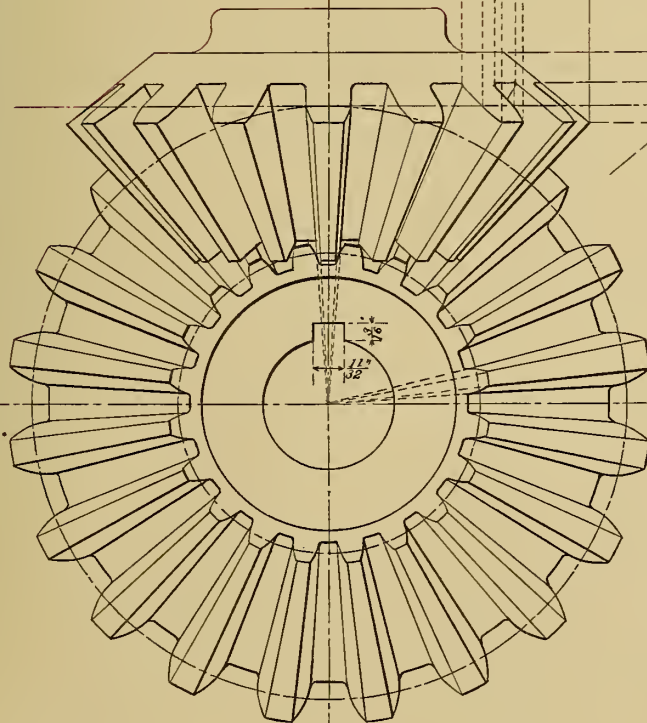


Fig. 2.

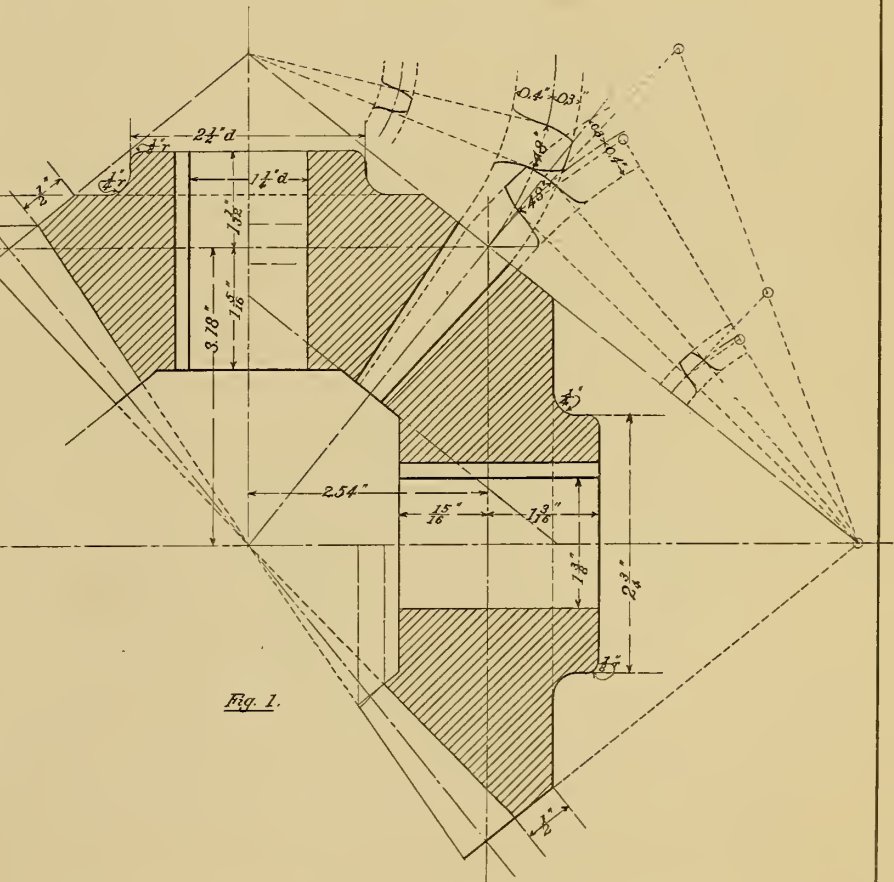


Fig. 1.

PROBLEM 1: To bisect a straight line

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line

CASE I.

CASE II.

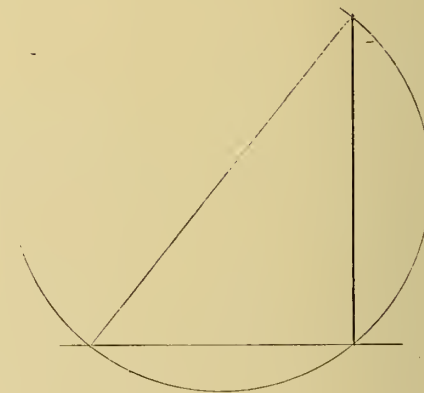
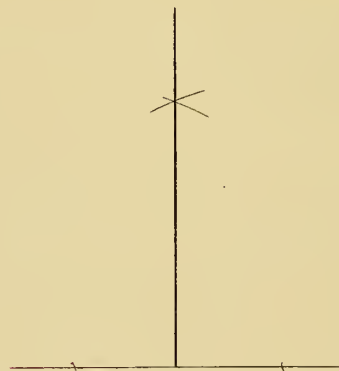
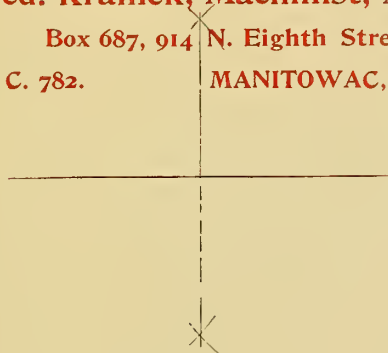
Photograph of Plate Drawn by

Fred. Krainek, Machinist, Age 20,

Box 687, 914 N. Eighth Street,

C. 782.

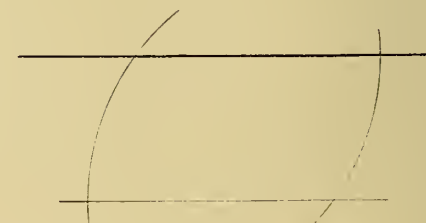
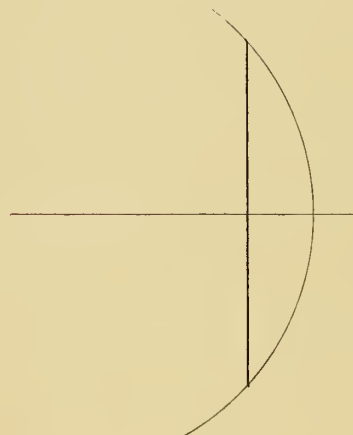
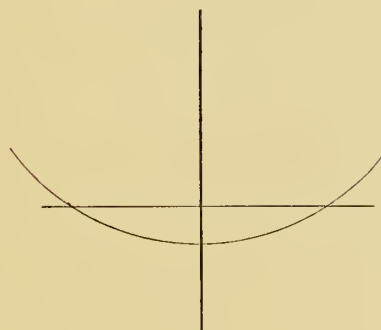
MANITOWAC, WIS.



PROBLEM 3: To draw a perpendicular to a point without it
CASE I

CASE II.

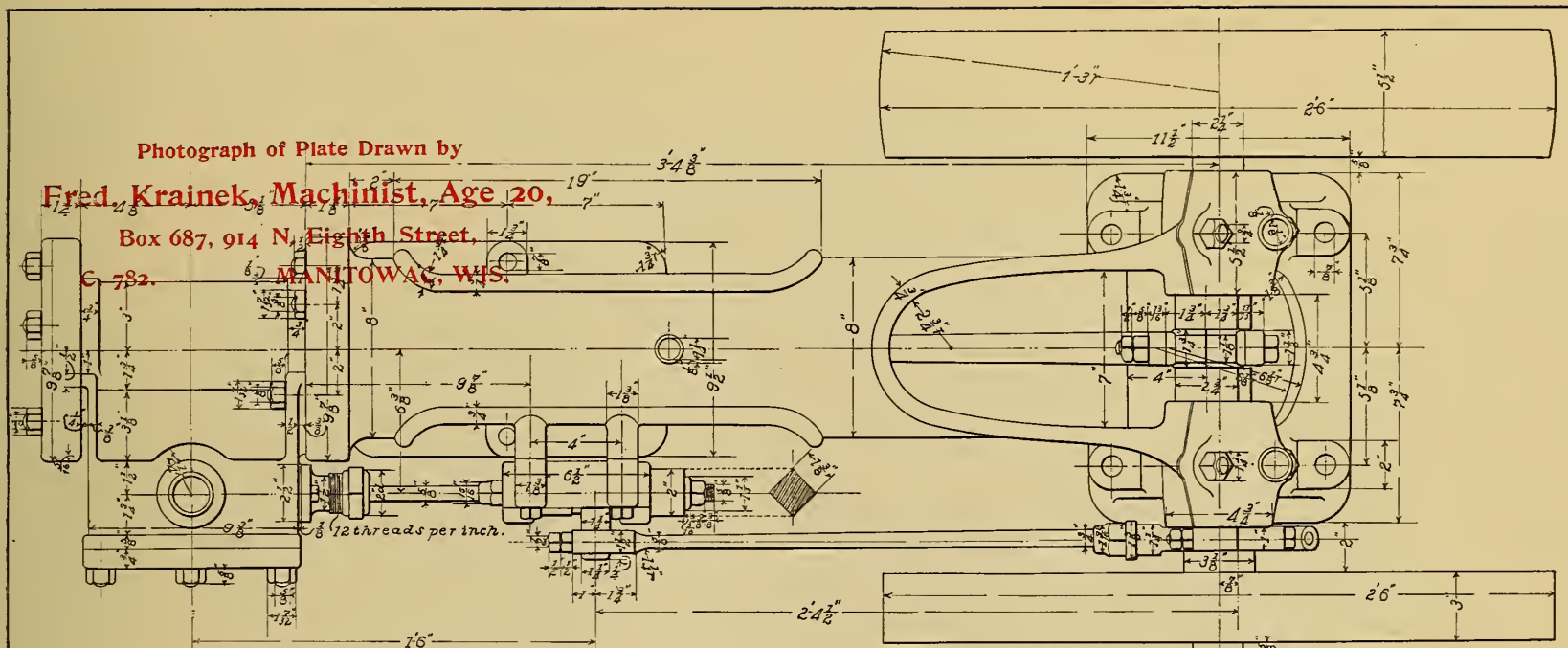
PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line



MAY 18. 1894.

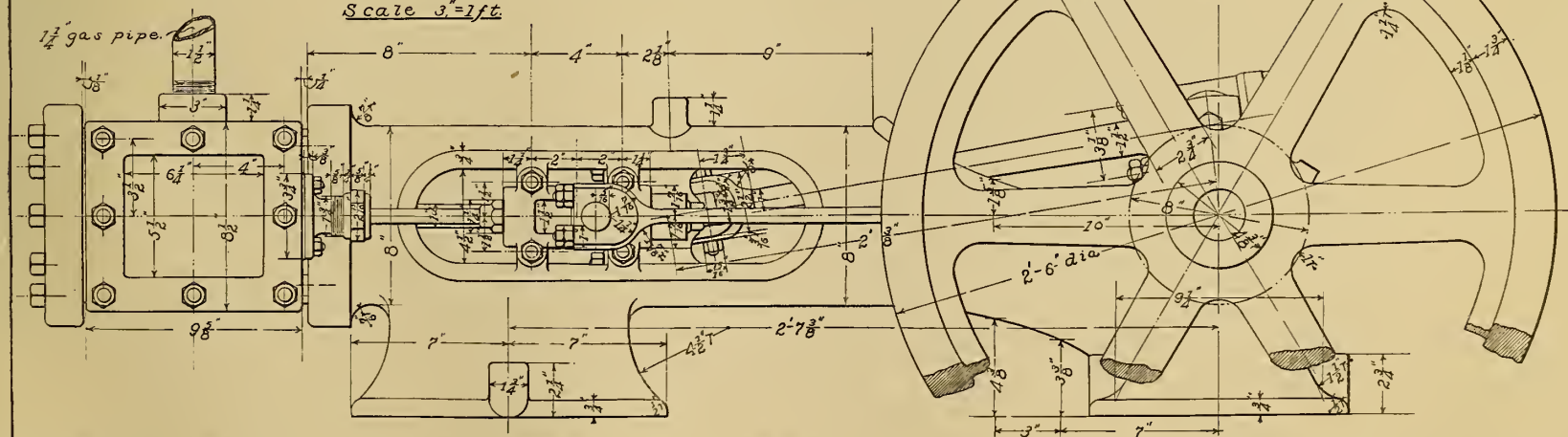
Fred Krainek, CLASS, No. 782.

Photograph of Plate Drawn by
Fred. Krainek, Machinist, Age 20,
 Box 687, 914 N. Eighth Street,
 C-782. MANITOWAC, WIS.



SIX HORSE POWER HORIZONTAL STEAM ENGINE.

Scale $3'' = 1 \text{ ft.}$



Photograph of Plate Drawn by
Chas. Kuderer, Machinist, Age 20,
 40 West Second Street,
 C. 417. ELIZABETHPORT, N. J.

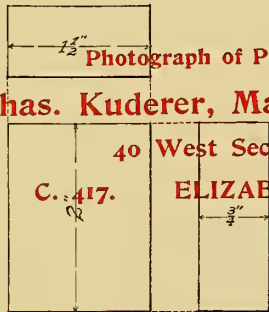


Fig. 1.

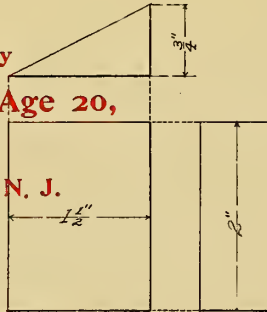


Fig. 2.

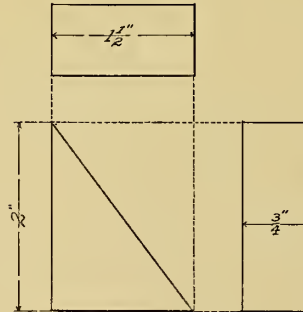


Fig. 3.

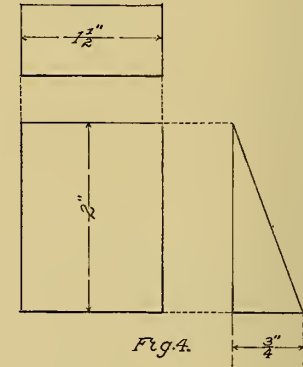


Fig. 4.

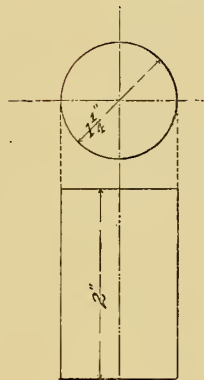


Fig. 5.

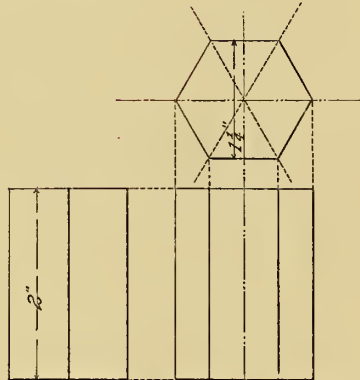


Fig. 6.

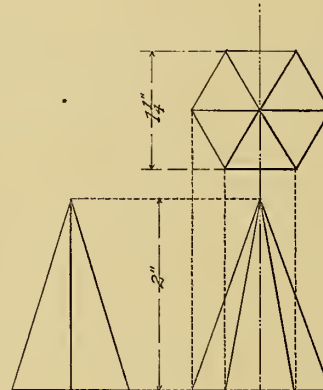


Fig. 7.

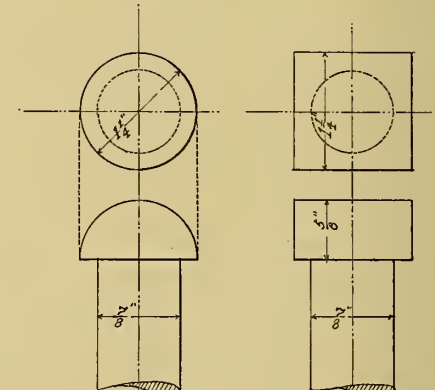


Fig. 8.

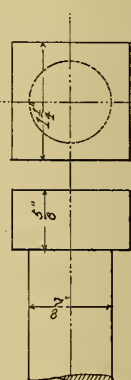


Fig. 9.

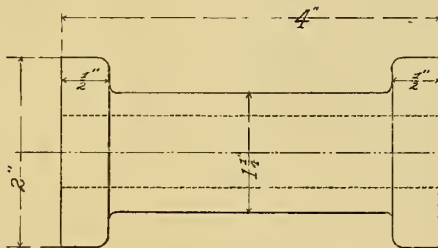


Fig. 10.

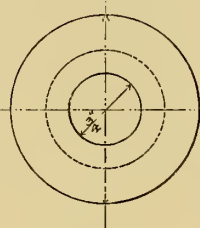


Fig. 11.

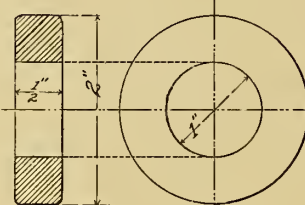
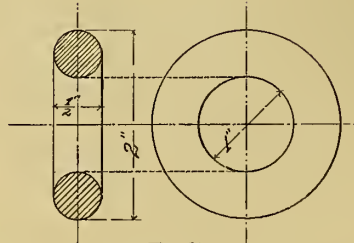


Fig. 12.

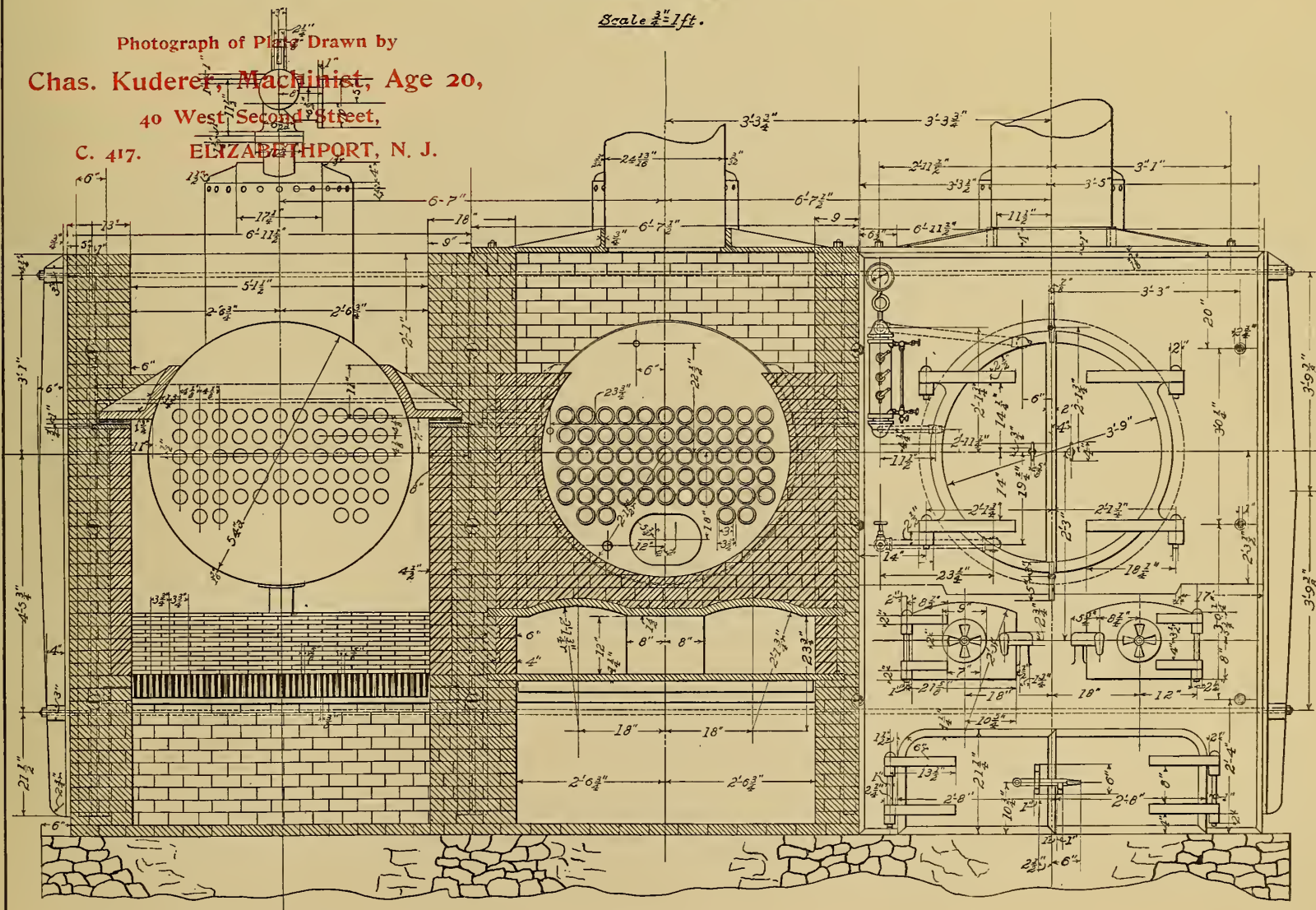


BOILER SETTING.

Photograph of Plate Drawn by

40 West Second Street,

C. 417. ELIZABETHPORT, N. J.



CHARLES KUDERER, CLASS N^o C 417.

PLATE I

PROBLEM 1: To bisect a straight line.

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.
CASE I

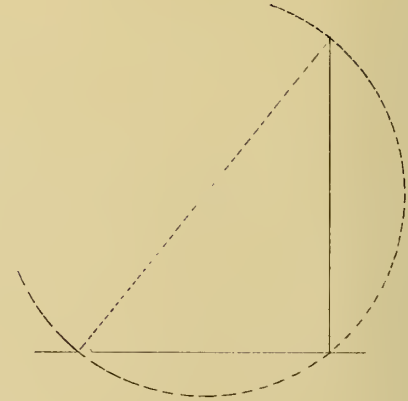
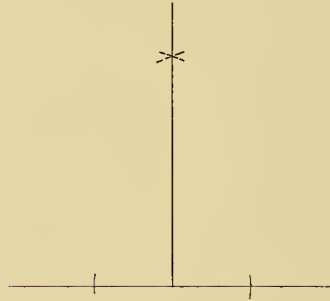
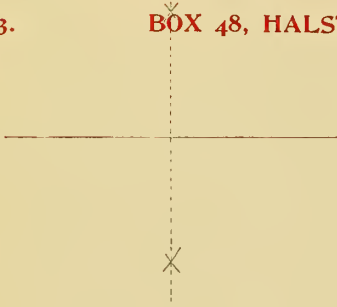
CASE II

Photograph of Plate Drawn by

G. Wiebe, Jr., Age 24,
Engineer and Fireman,

C. 753.

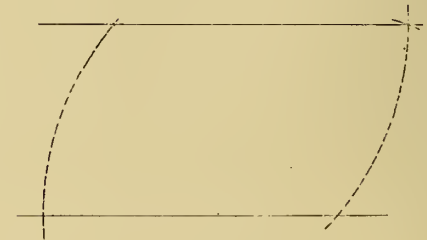
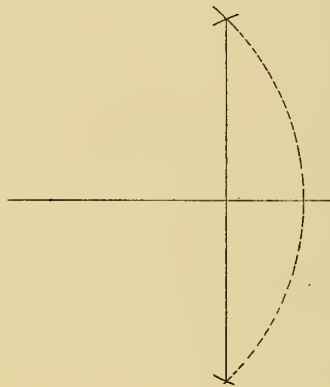
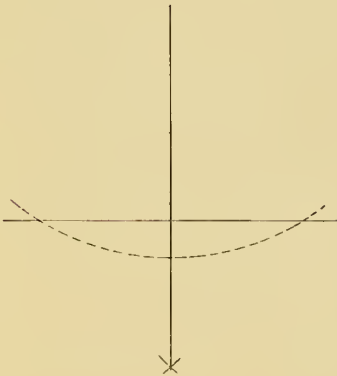
BOX 48, HALSTEAD, KAN.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it.
CASE I

CASE II

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line.



WEIGHTED GOVERNOR.

Scale 3"=1 ft.

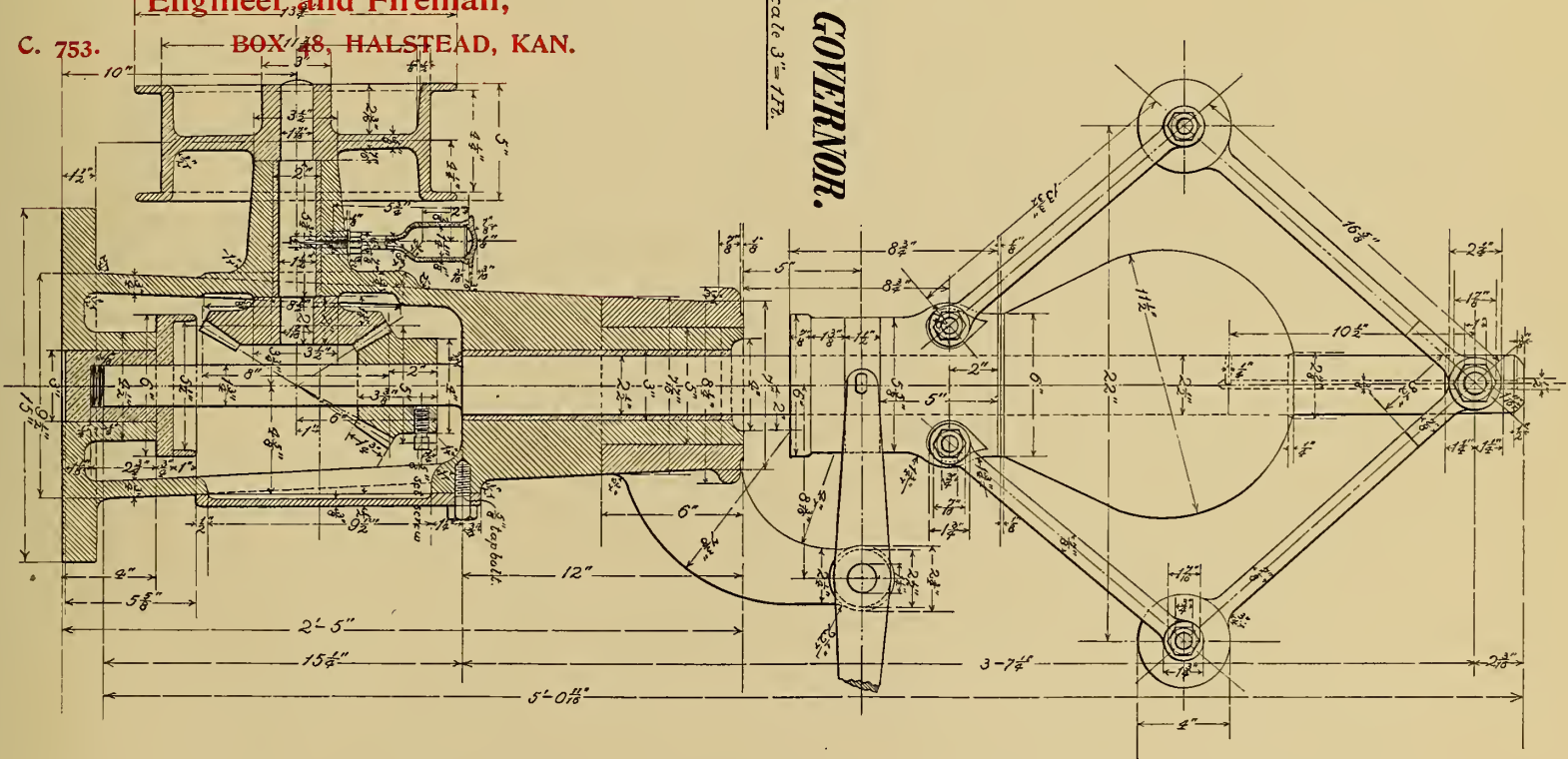
Photograph of Plate Drawn by

G. Wiebe, Jr., Age 24,

Engineer and Fireman,

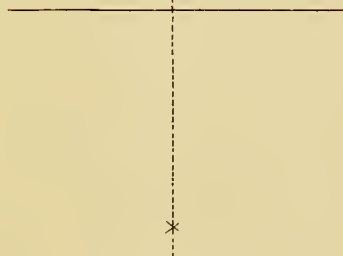
C. 753.

BOX 48, HALSTEAD, KAN.



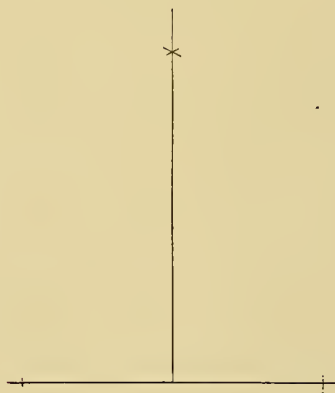
PROBLEM I.—To bisect a given straight line

Photograph of Plate Drawn by
John Lloyd, Machinist, Age 32,
58 Dana Street,
M. D. 526. WILKES-BARRE, PA.

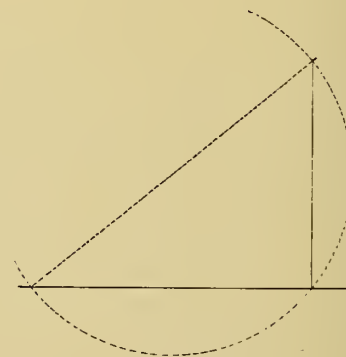


PROBLEM 2.—To draw a perpendicular to a straight line from a given point in that line:

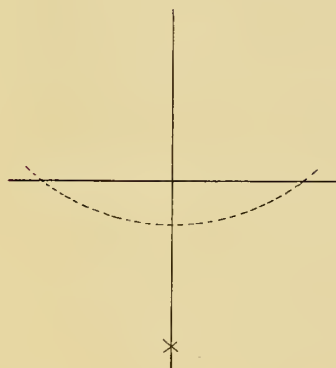
Case I.



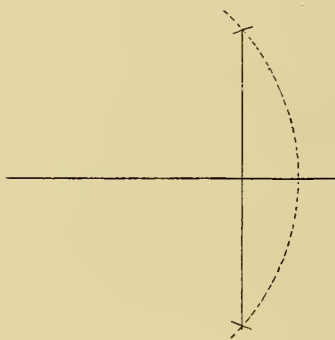
Case II.



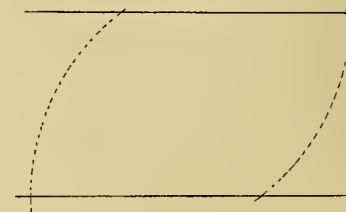
PROBLEM 3.—To draw a perpendicular to a straight line from a given point without it:
Case I.



Case II.



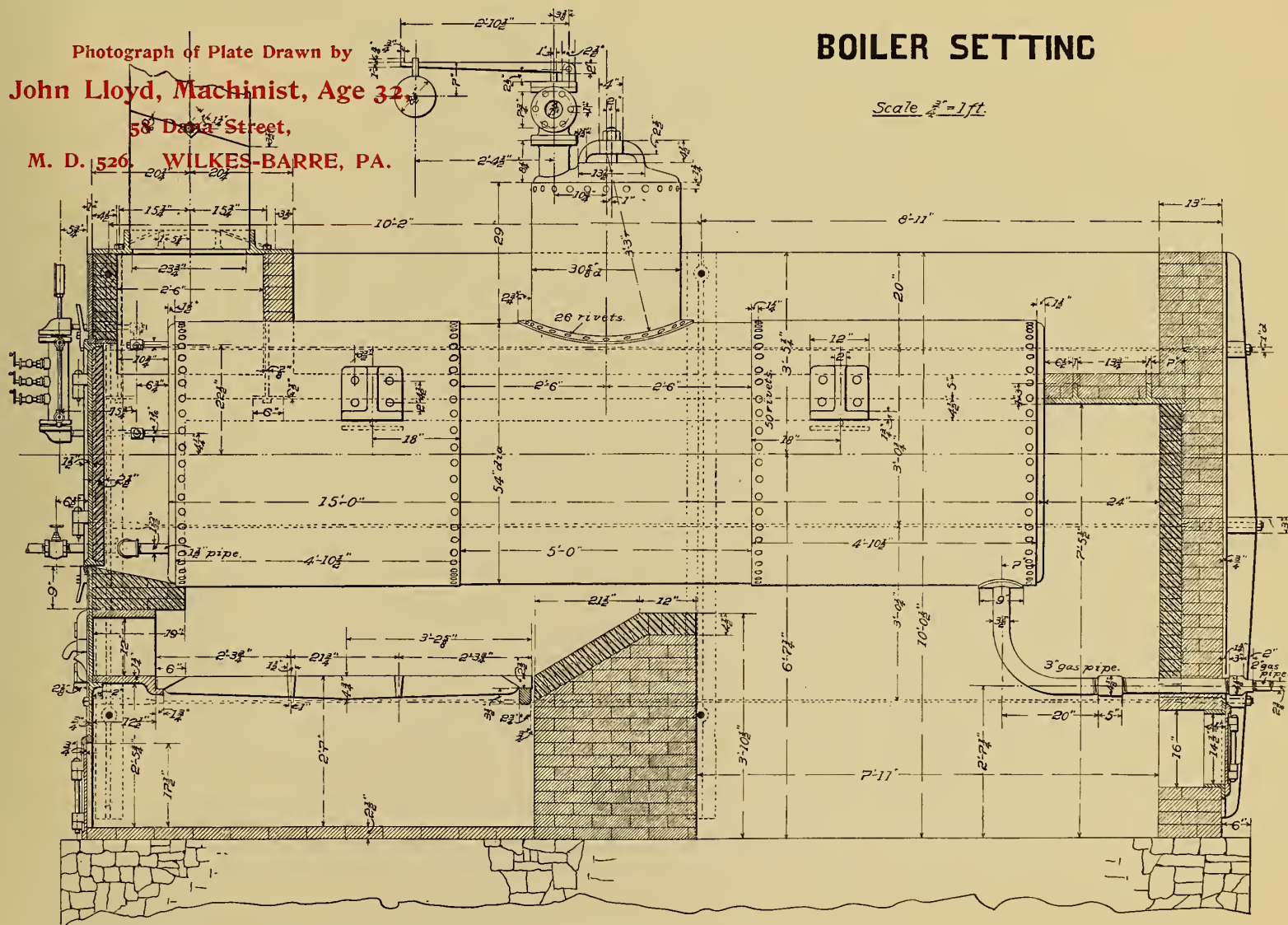
PROBLEM 4.—Through a given point to draw a straight line parallel to a given straight line



Photograph of Plate Drawn by
John Lloyd, Machinist, Age 32
 58 Doria Street,
 M. D. 526. WILKES-BARRE, PA.

BOILER SETTING

Scale $\frac{1}{4}" = 1'ft$



PROBLEM 1: To bisect a given straight line:

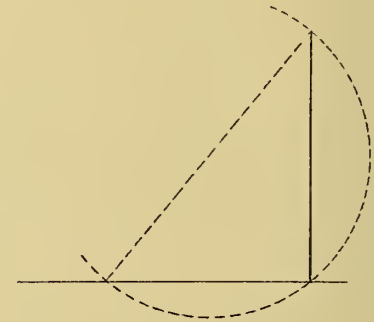
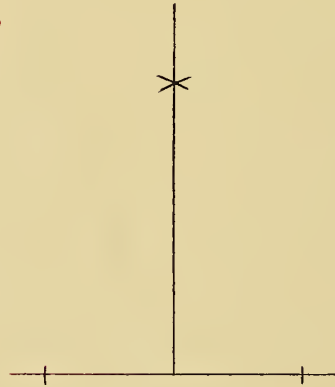
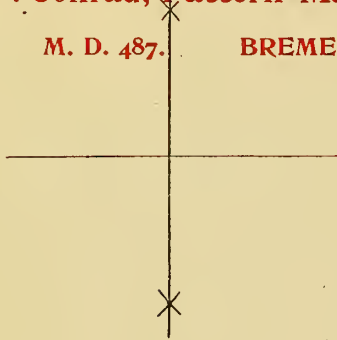
PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line:
CASE I.

CASE II.

Photograph of Plate Drawn by

E. F. Conrad, Pattern-Maker, Age 36,

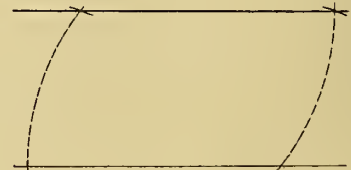
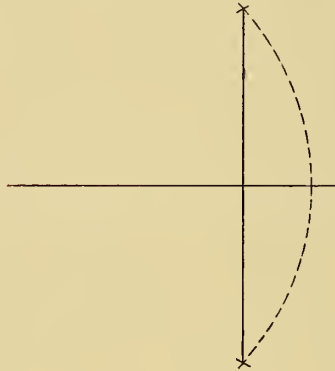
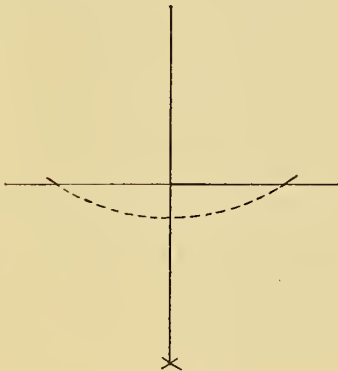
M. D. 487. BREMEN, IND.



PROBLEM 3: To draw a perpendicular to a straight line from a given point without it:
CASE I.

CASE II.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line:



Photograph of Plate Drawn by
E. F. Conrad, Pattern-Maker, Age 36,
M. D. 487. BREMEN, IND.

WEIGHTED GOVERNOR.
 Scale 3=17 1/2"

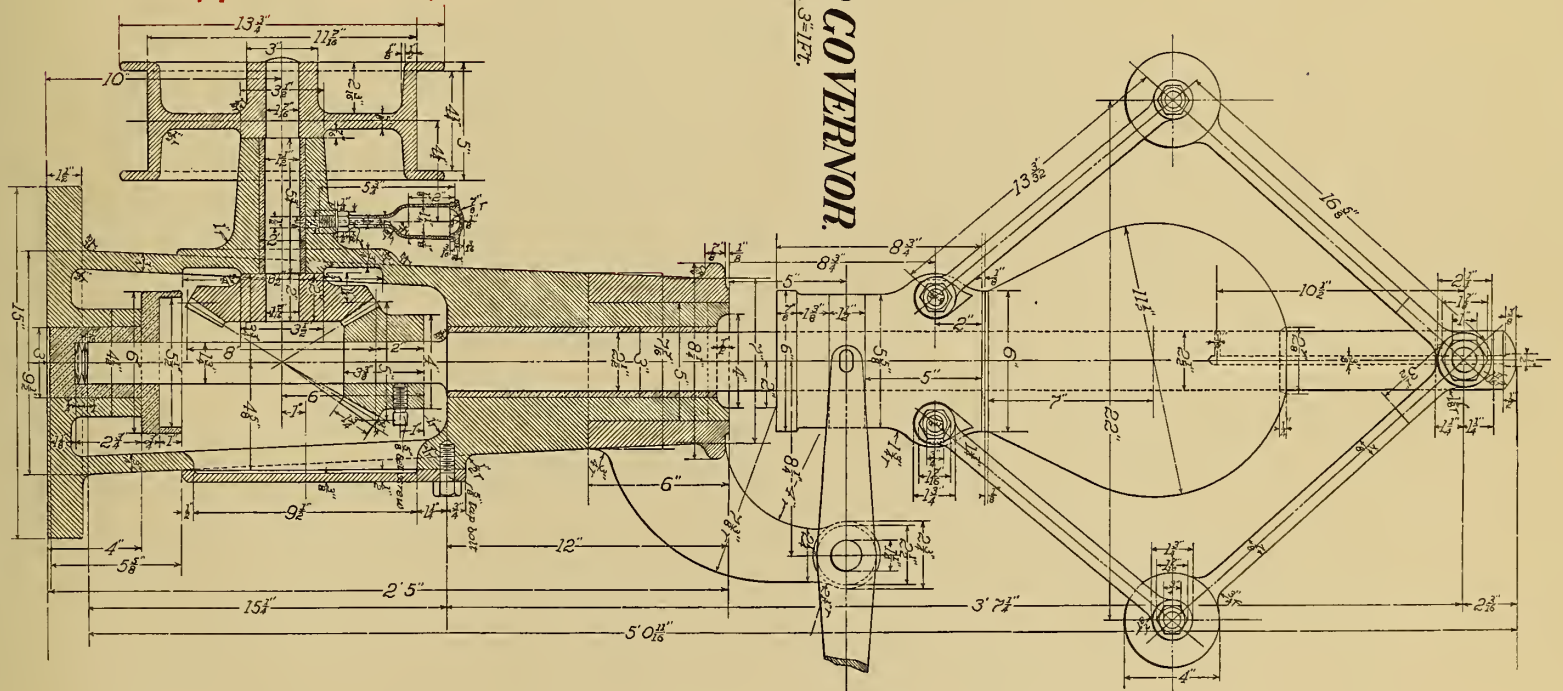
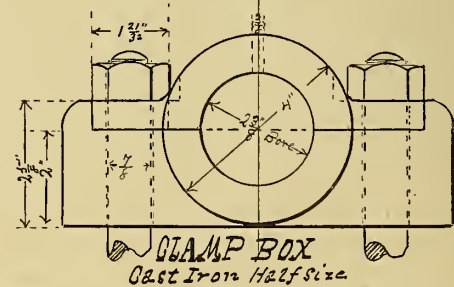
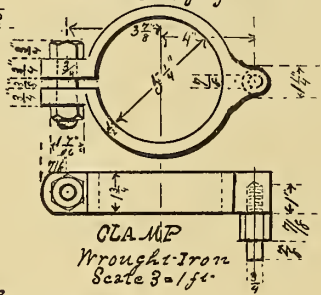
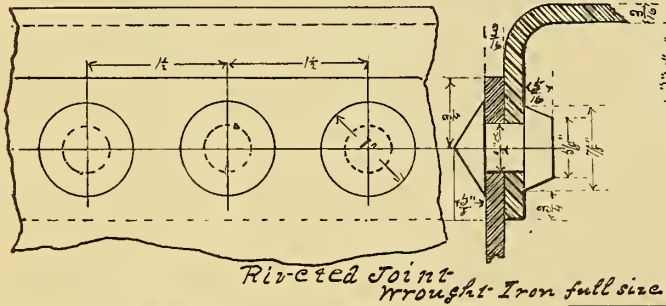
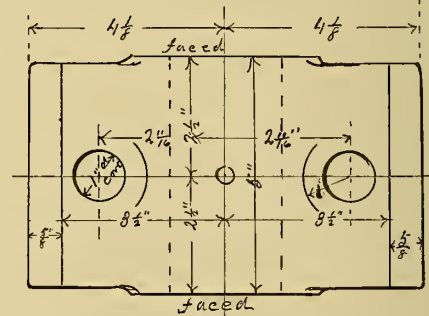
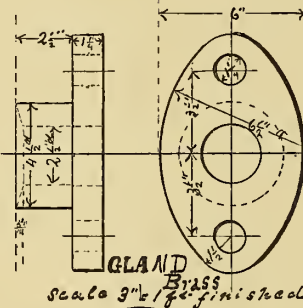
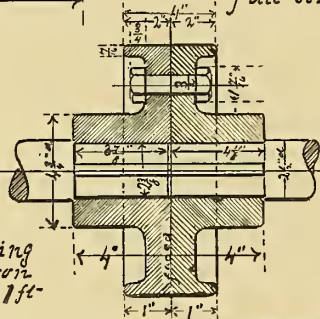
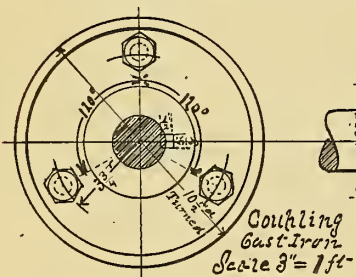
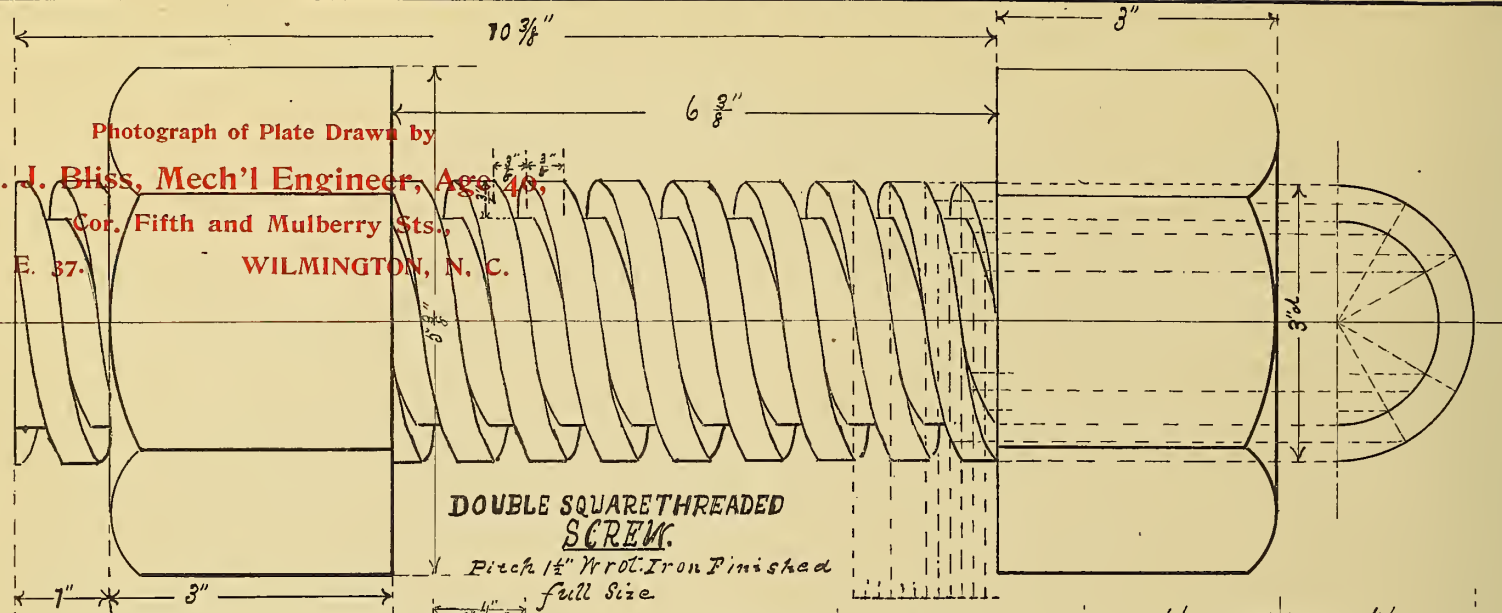


PLATE XI.

Photograph of Plate Drawn by
R. J. Bliss, Mech'l Engineer, Age 46,
Cor. Fifth and Mulberry Sts.,
E. 37. WILMINGTON, N. C.



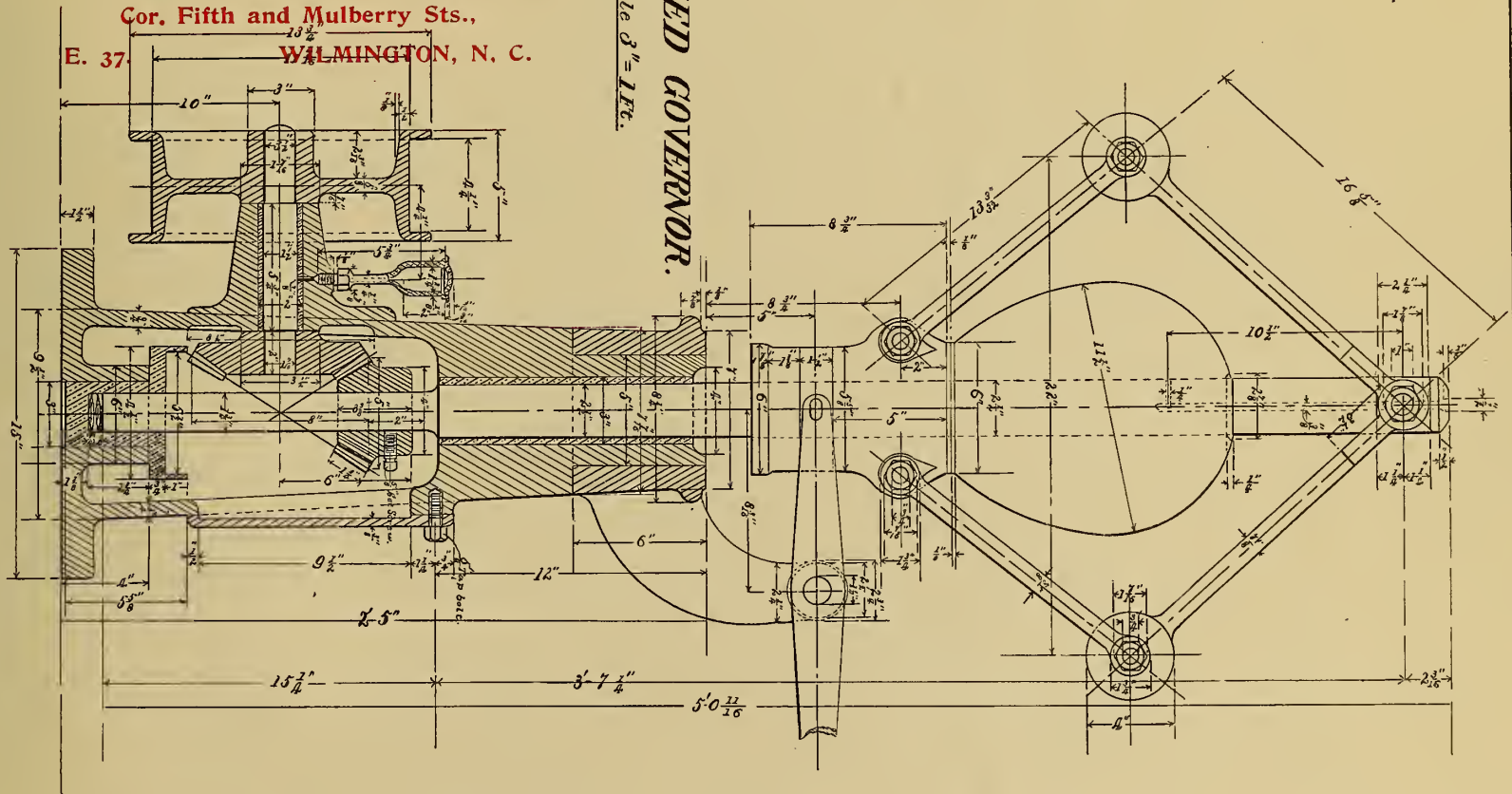
Sept. 17-1894

R. J. Bliss Class E. 37.

E. 37.

WILMINGTON, N. C.

Scale 3" = 1 Ft.



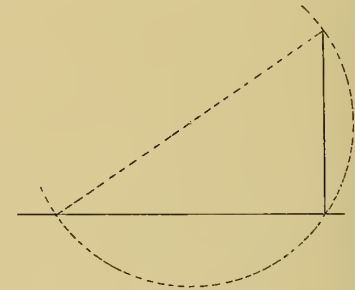
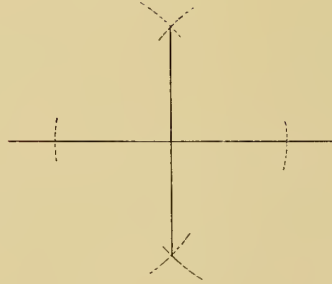
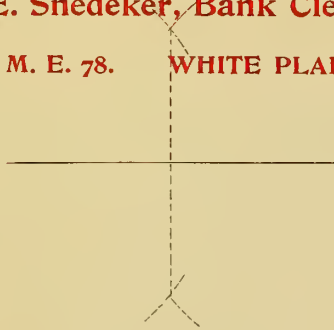
PROBLEM 1: To bisect a straight line.

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line
CASE I.

CASE II.

Photograph of Plate Drawn by
S. E. Snedeker, Bank Clerk, Age 23,

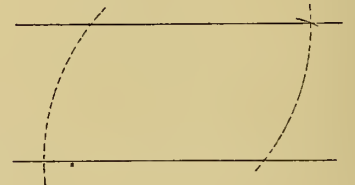
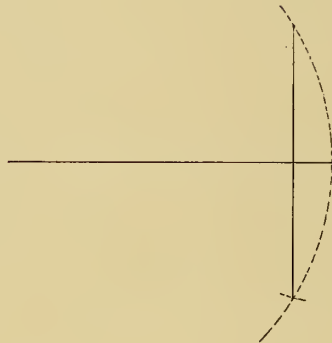
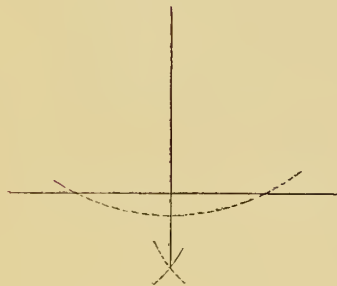
M. E. 78. WHITE PLAINS, N. Y.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it.
CASE I.

CASE II.

PROBLEM 4: Through a given point to draw
a straight line parallel to a given straight line.

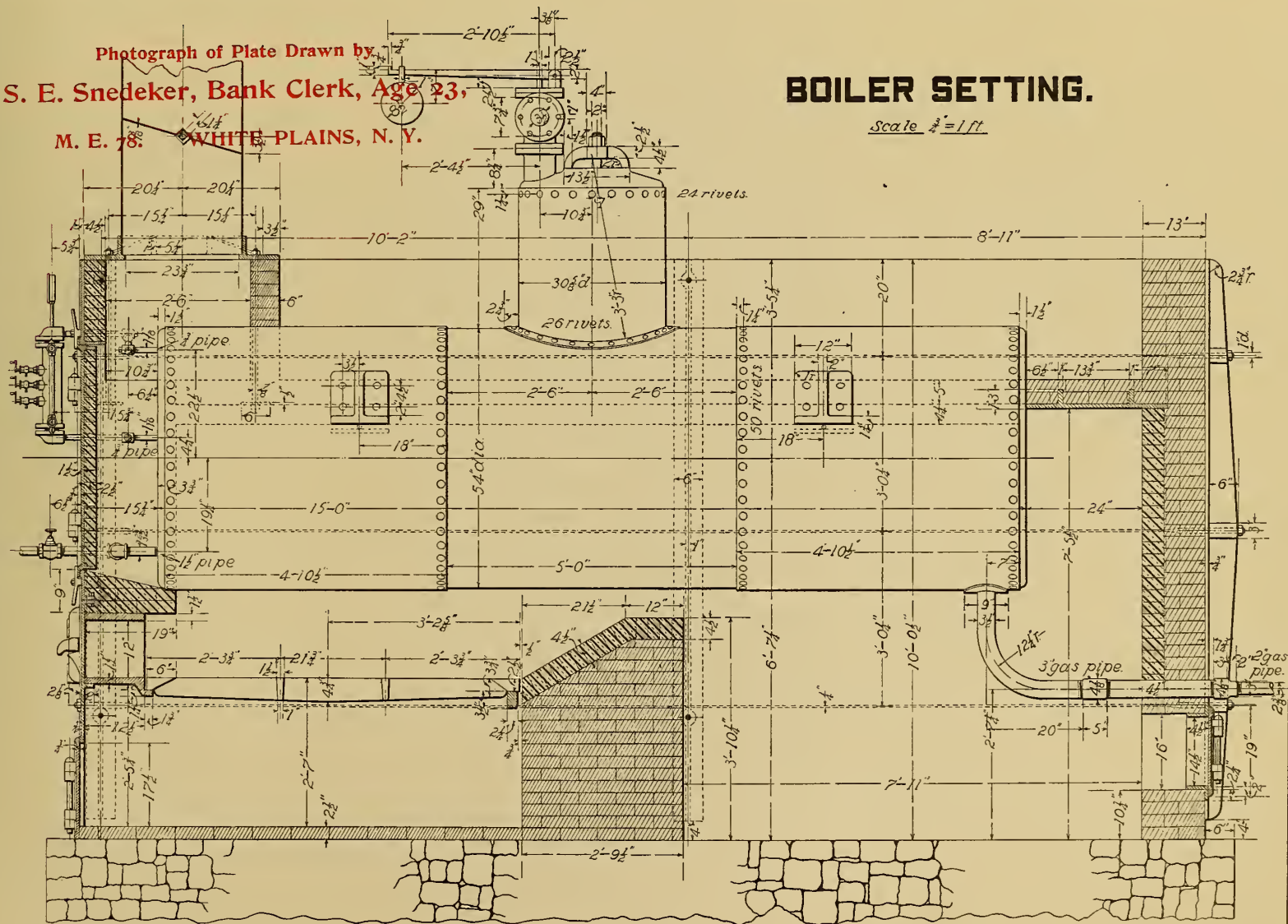


S. E. Snedeker, Bank Clerk, Age 23,

M. E. 78.  WHITE PLAINS, N. Y.

BOILER SETTING.

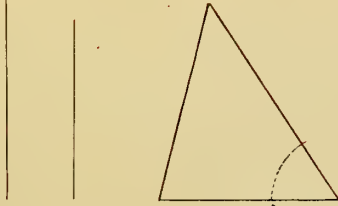
Scale $\frac{3}{4}'' = 1 \text{ ft.}$



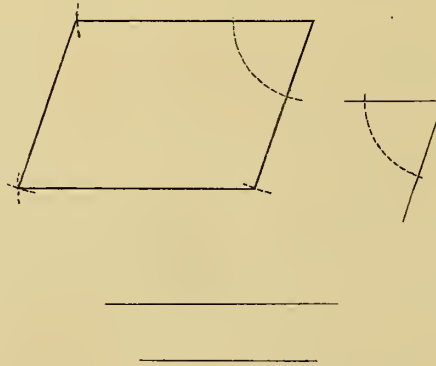


PROBLEM 10: Two sides and the included angle of a triangle being given, to construct the triangle.

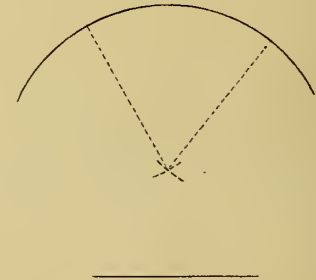
Photograph of Plate Drawn by
E. Thompson, Clerk, Age 29,
 69 Schaeffer Street,
 M. E. 1138. BROOKLYN, N. Y.



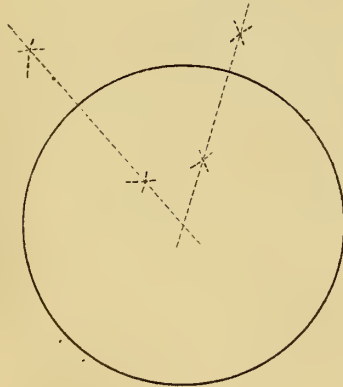
PROBLEM 11: To draw a parallelogram when the sides and one of the angles are given :



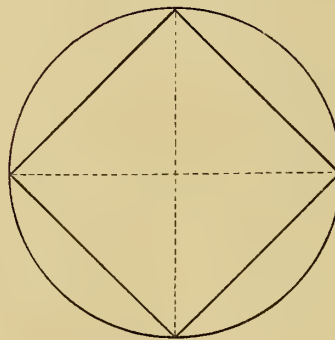
PROBLEM 12: An arc and its radius being given, to find its centre :



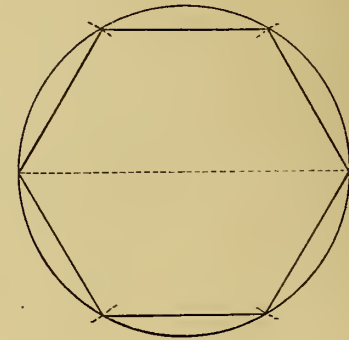
PROBLEM 13: To pass a circumference through any three points not in the same straight line:



PROBLEM 14: To inscribe a square in a given circle:



PROBLEM 15: To inscribe a regular hexagon in a given circle:

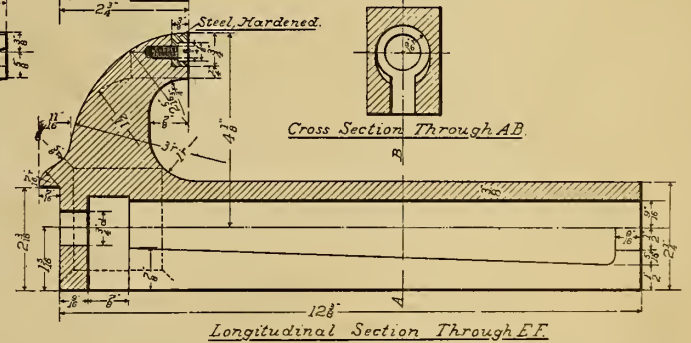
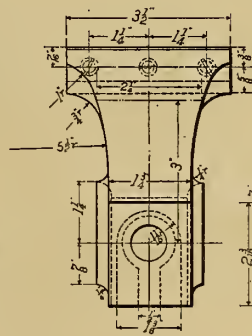
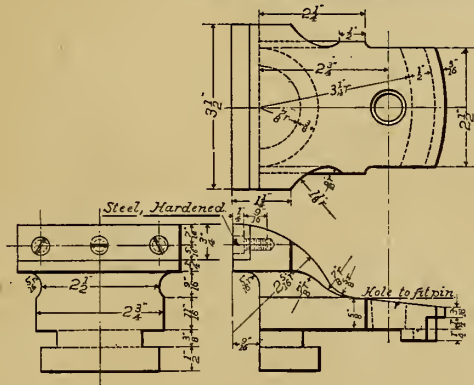
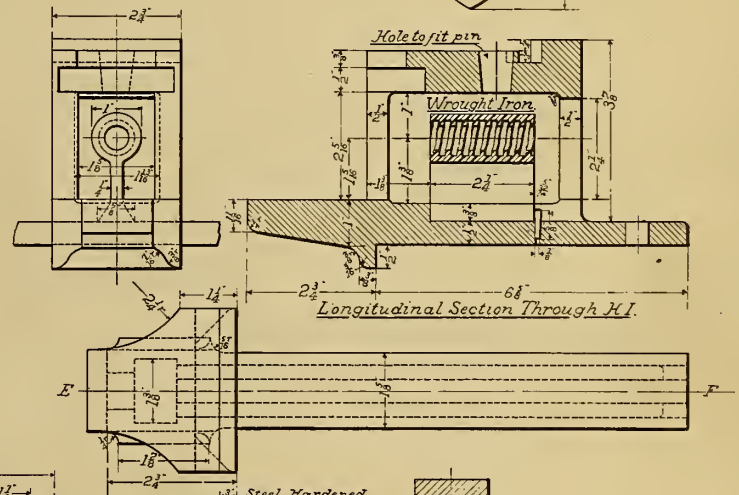
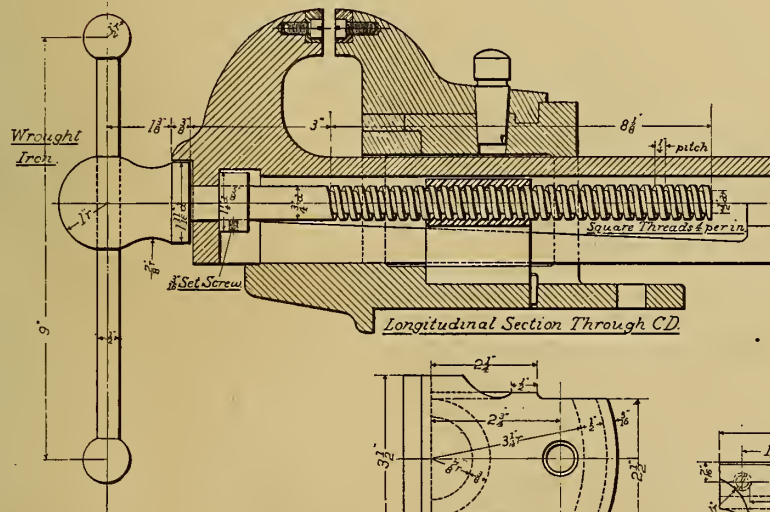
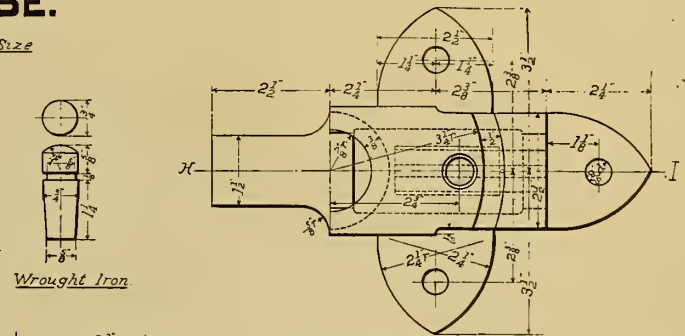
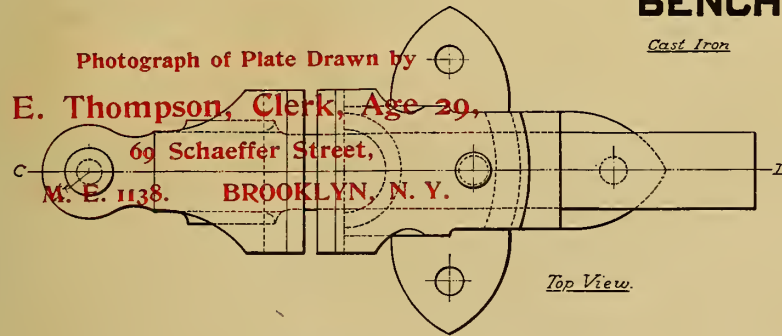


BENCH VISE.

Photograph of Plate Drawn by
E. Thompson, Clerk, Age 29,
 69 Schaeffer Street,
 M. E. 1138. BROOKLYN, N. Y.

Cast Iron

Half Size



PROBLEM 1: To bisect a straight line.

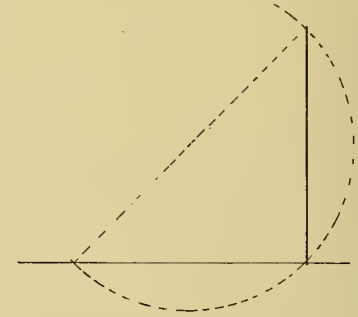
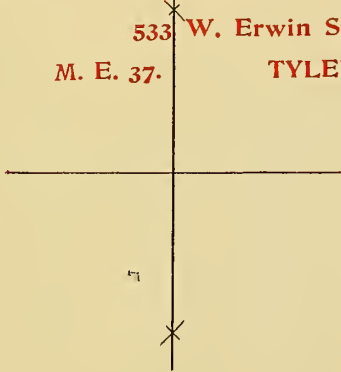
PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.
CASE I.

CASE II.

Photograph of Plate Drawn by

A. E. JUDGE, Pres. Electric Light Co., Age 45,

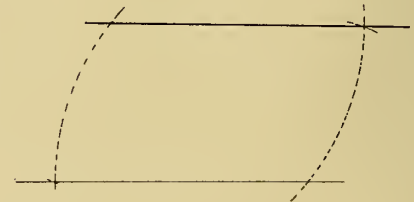
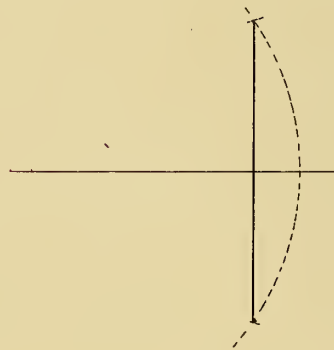
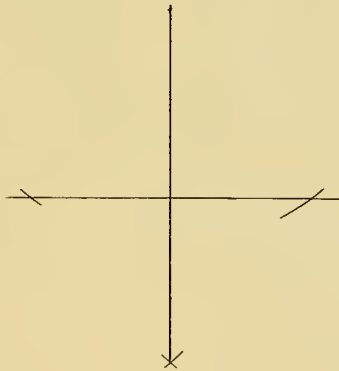
533 W. Erwin Street,
M. E. 37. TYLER, TEXAS.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it.
CASE I.

CASE II.

PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line.



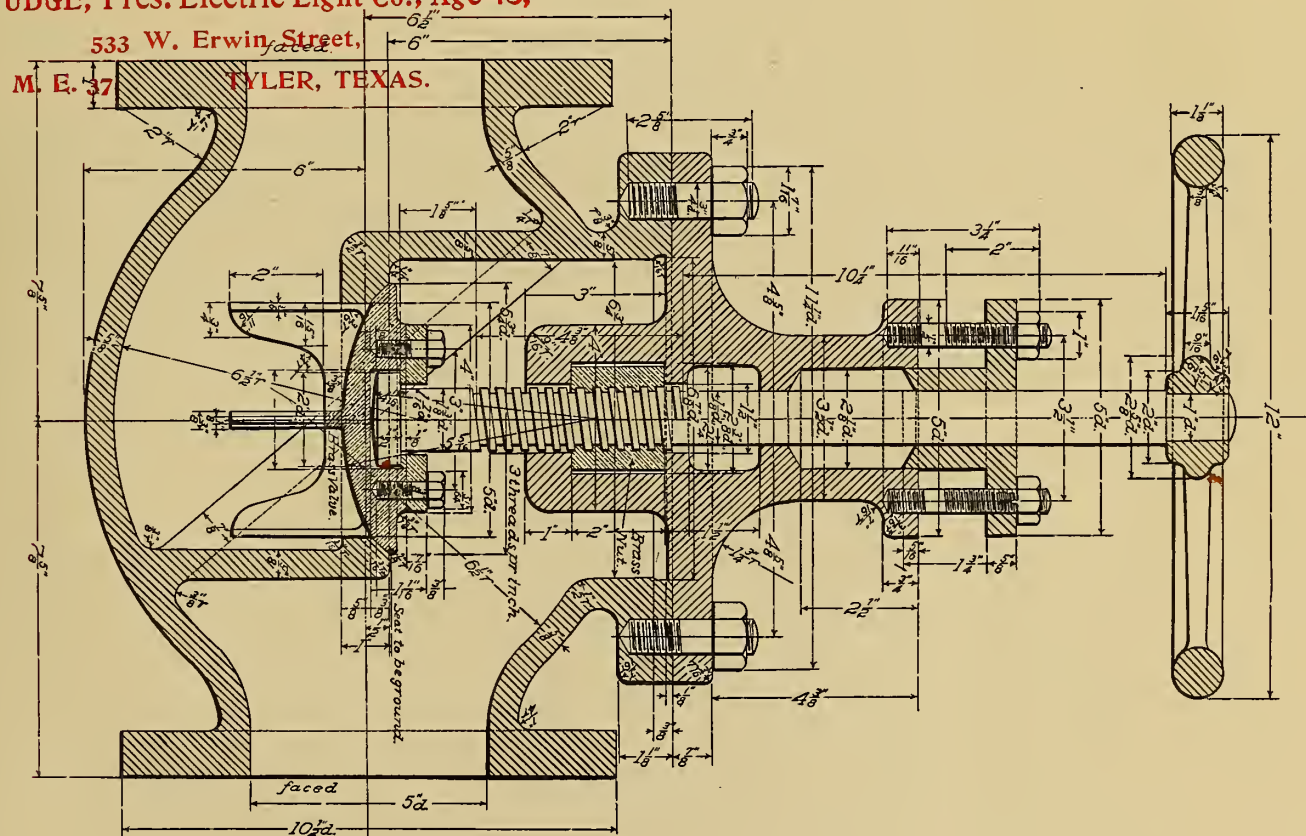
Photograph of Plate Drawn by

A. E. JUDGE, Pres. Electric Light Co., Age 45,

533 W. Erwin Street,

M. E. 37

TYLER, TEXAS.



SINCH GLOBE VALVE.

Cast Iron.

Half Size

PROBLEM 1: To bisect a straight line.

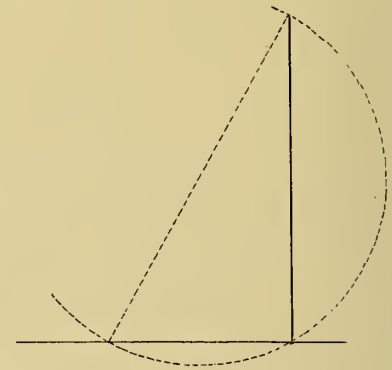
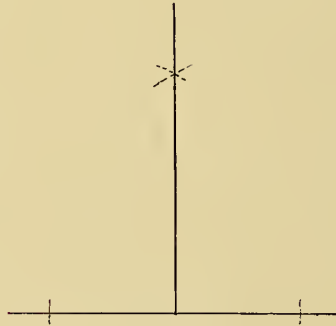
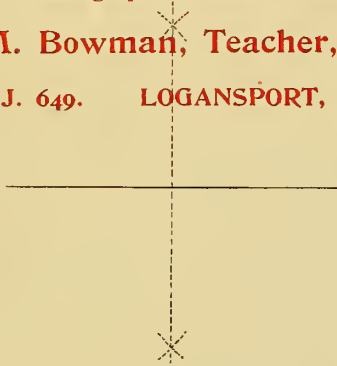
PROBLEM 2: To Draw a perpendicular to a straight line from a given point in that line.
CASE I.

CASE II

Photograph of Plate Drawn by

F. M. Bowman, Teacher, Age 34,

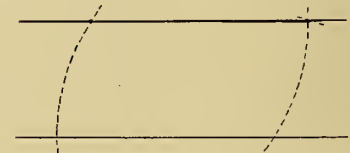
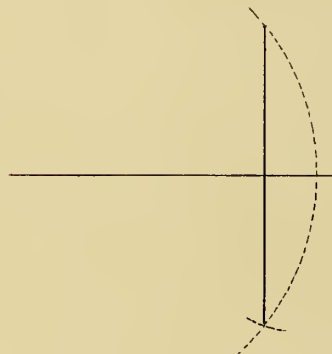
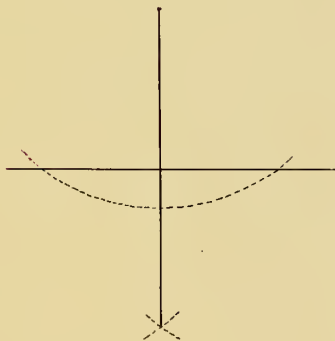
J. 649. LOGANSPOUT, IND.



PROBLEM 3: To draw a perpendicular to a straight line from a point without it
CASE I.

CASE II.

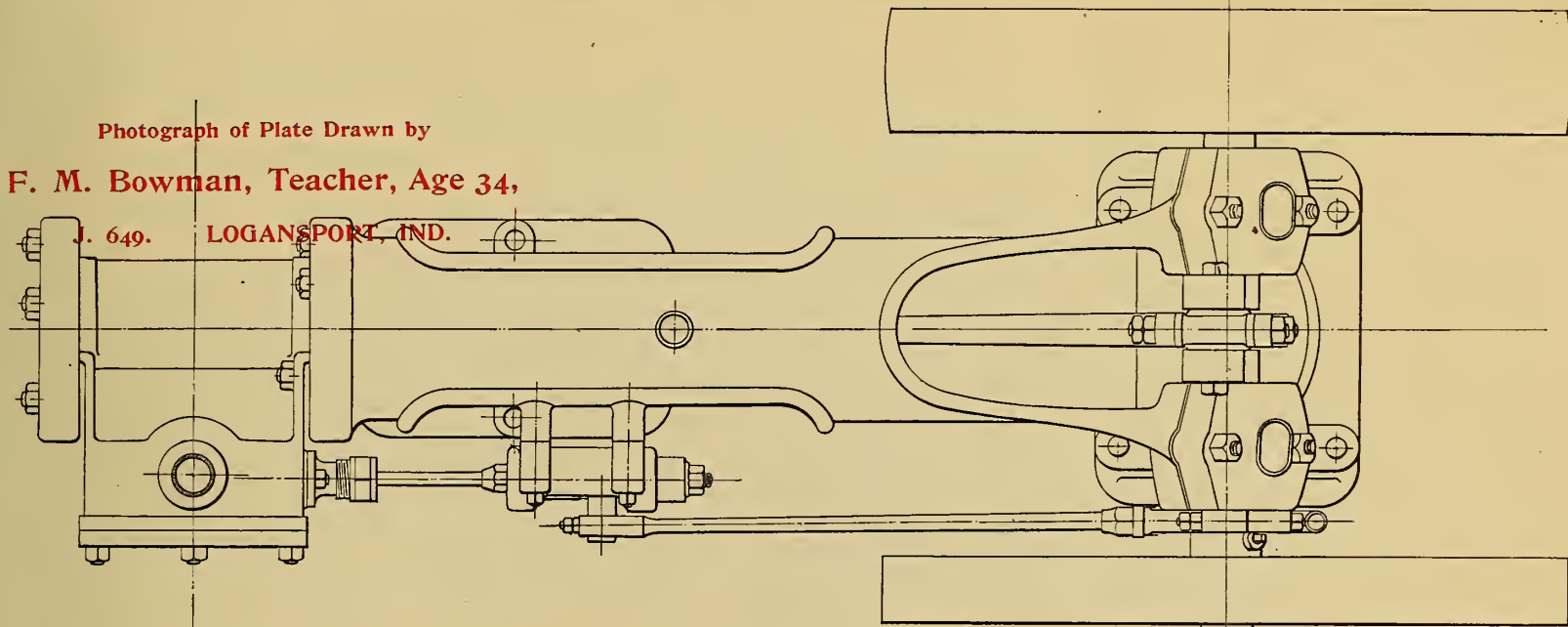
PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line.



Photograph of Plate Drawn by

F. M. Bowman, Teacher, Age 34,

J. 649. LOGANSPOUT, IND.



**SIX HORSE POWER
HORIZONTAL STEAM ENGINE.**

Scale 1" = 1 ft.

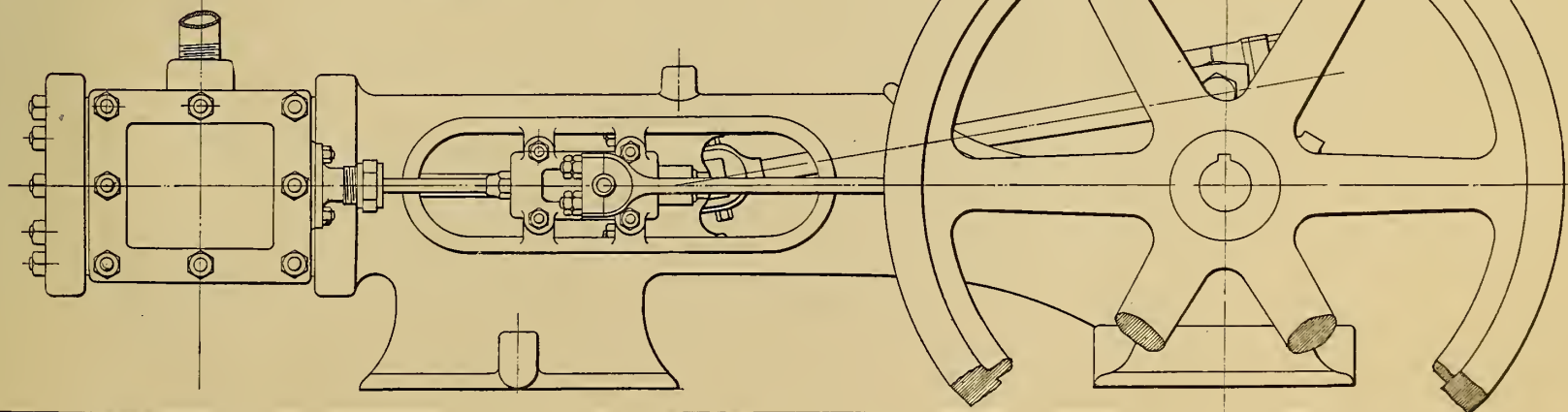




PLATE I.

PROBLEM 1: To bisect a straight line

PROBLEM 2: To draw a perpendicular to a straight line from a given point in that line.

CASE I.

CASE II.

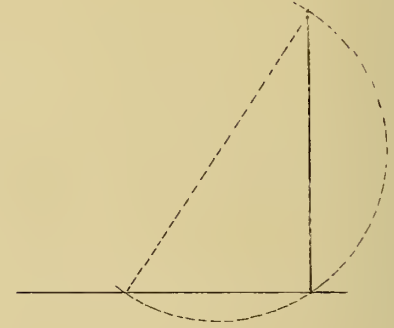
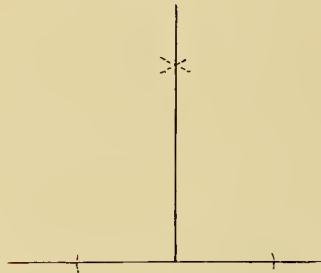
Photograph of Plate Drawn by

Samuel Murray, Fireman, Age 27,

U. S. S. "Oregon," Care of Navy Pay Office,

H. 2044.

SAN FRANCISCO, CAL.

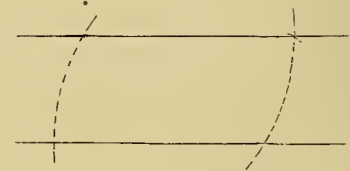
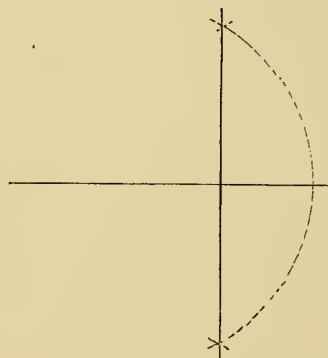
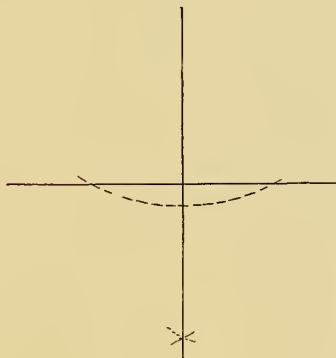


PROBLEM 3: To draw a perpendicular to a straight line from a point without it

CASE I.

CASE II.

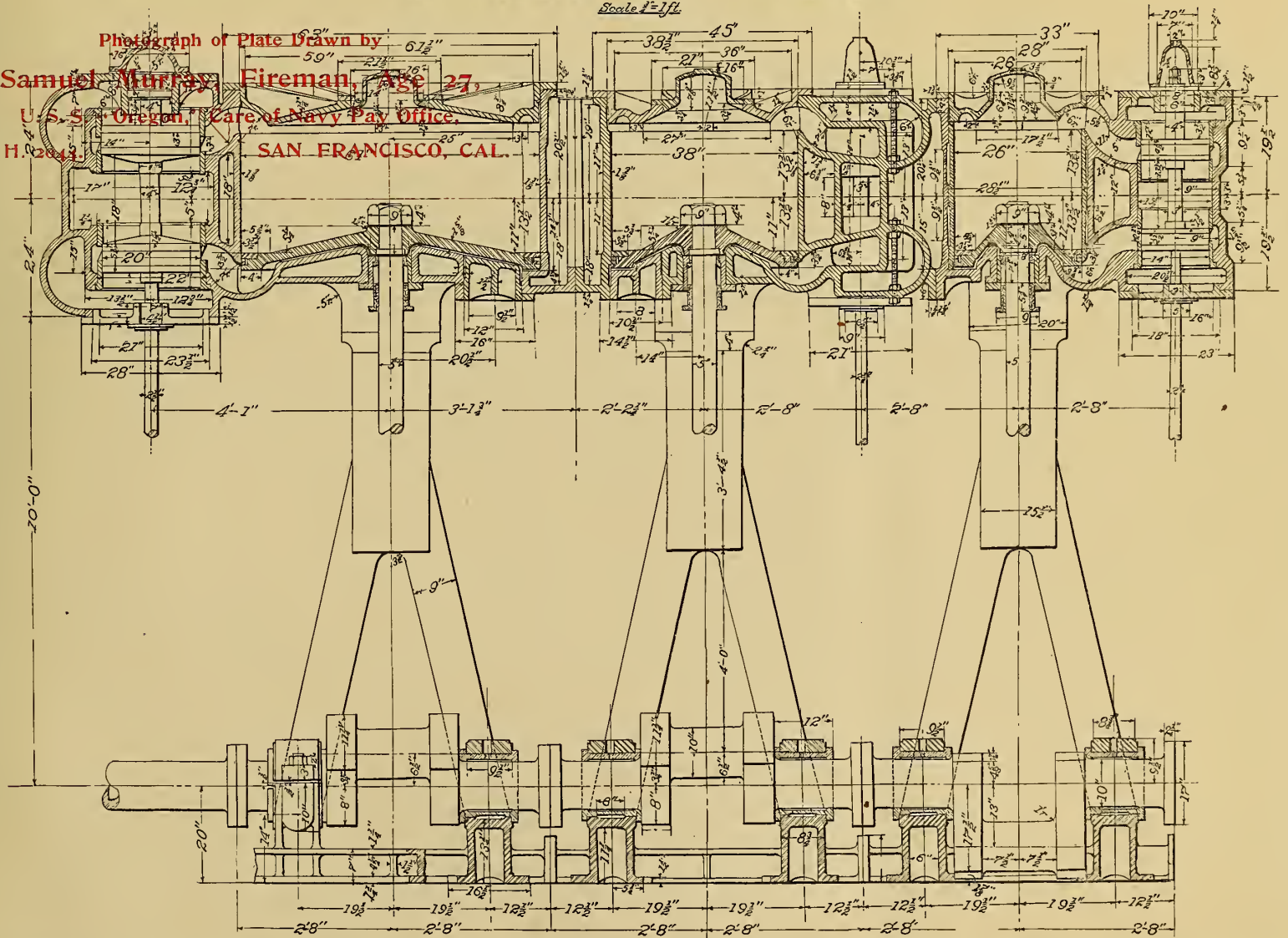
PROBLEM 4: Through a given point to draw a straight line parallel to a given straight line



TRIPLE EXPANSION ENGINE.

Scale 1"=1 ft.

Photograph of Plate Drawn by
Samuel Murray, Fireman, Age 27,
 U.S.S. "Oregon," Care of Navy Pay Office,
 H-2044. **SAN FRANCISCO, CAL.**



PROBLEM 5: To bisect a given angle
GASF 1.

PROBLEM 5: To bisect a given angle

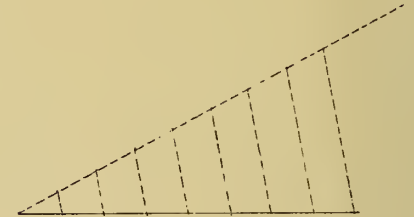
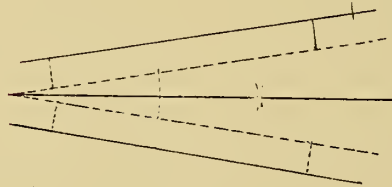
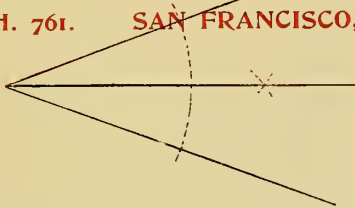
PROBLEM 6: To divide a given straight line into
any required number of equal parts

Photograph of Plate Drawn by

J. A. Reed, Marine Engineer, Age 27,

41 Natoma Street,

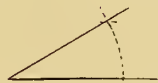
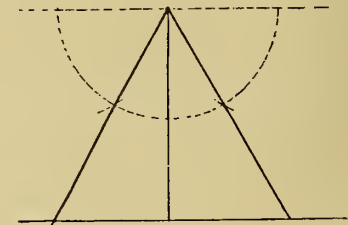
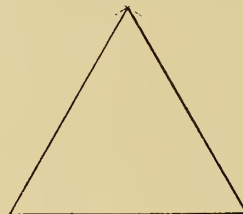
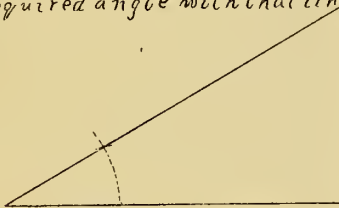
H. 761. SAN FRANCISCO, CAL.



PROBLEM 7: To draw a straight line through any
given point on a given straight line to make
any required angle with that line

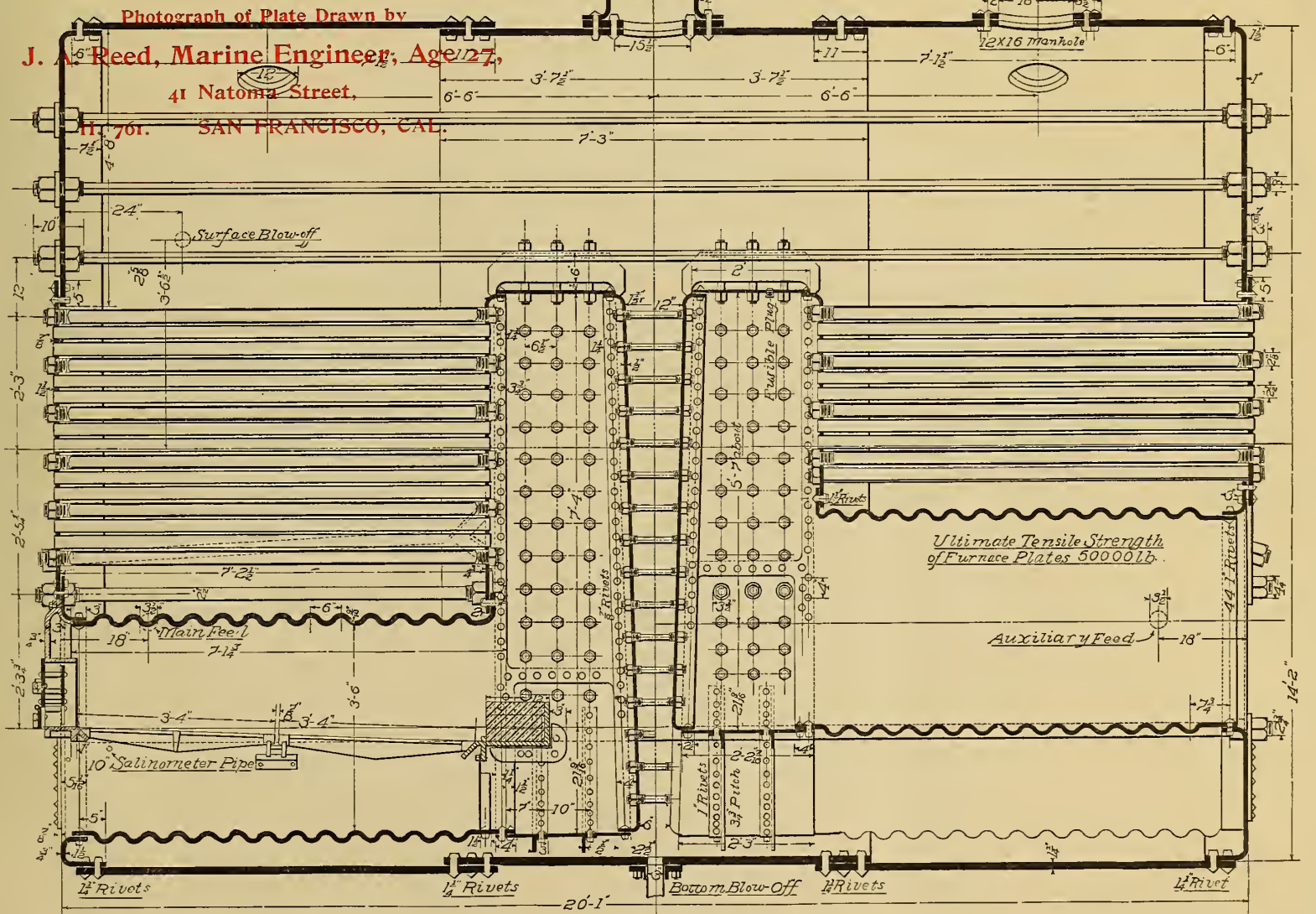
PROBLEM 8: To draw an equilateral triangle,
one side being given.

PROBLEM 9: The altitude of an equilateral
triangle being given to draw the triangle



DOUBLE-ENDED MARINE BOILER.-II

Scale $\frac{1}{4}$ " = 1 ft



October 27, 1897

JAREED, CLASS No. H-761.

PLATE V.

Problem. 22.— To draw an egg shaped oval

Problem. 23.— To draw an ellipse the diameters being given:

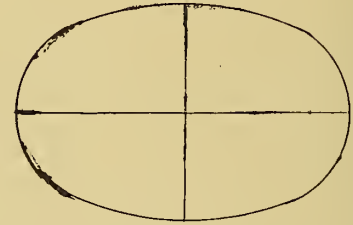
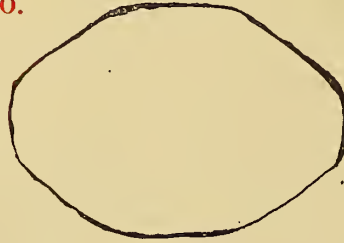
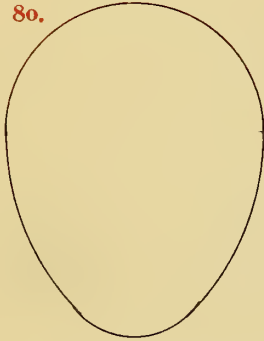
Problem. 24.— To draw an ellipse with circular arcs:

Photograph of Plate Drawn by

R. Hallum, Age 22,
Hoisting Engineer,

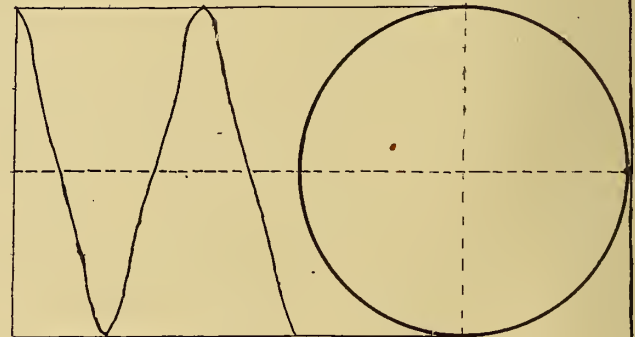
M. 80,

DESLOGE, MO.



Problem. 25.— To draw a parabola the axis and longest double ordinate being given

Problem. 26.— To draw a helix the pitch and the diameter being given



JAN. 9. 1894.

ROBT HALLUM. CLASS. No 80

PLATE XII.

4'-5" SHEAVE

Scale $3'' = 1 \text{ ft.}$

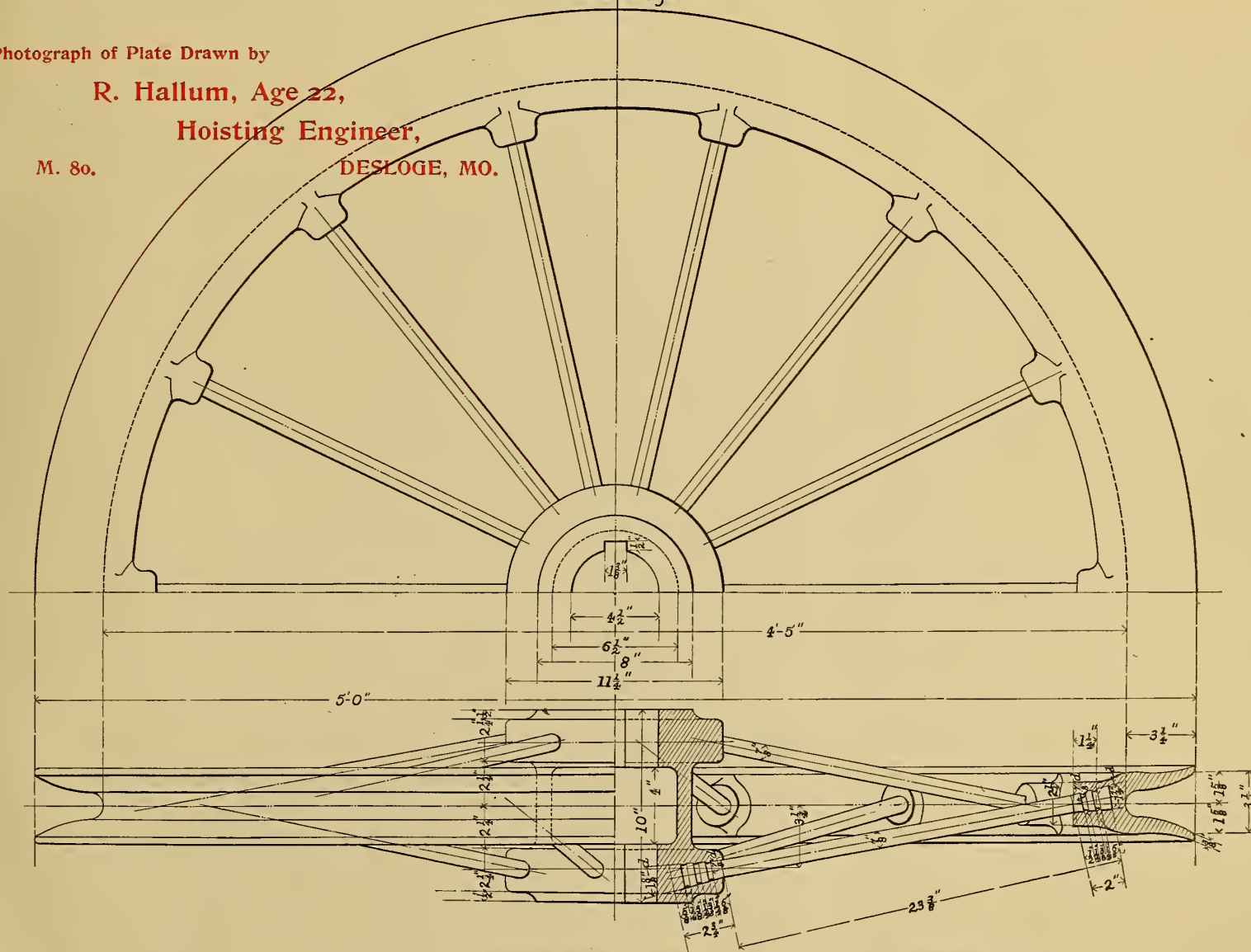
Photograph of Plate Drawn by

~~R. Hallum, Age 22,~~

~~Hoisting Engineer,~~

M. 80.

~~DESLOGE, MO.~~







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